sputnik

MONTHLY DIGEST

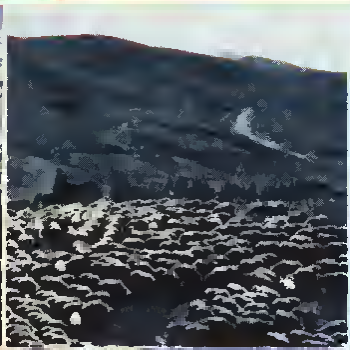
1970
December
12

Kirghiz SSR

He Swallowed Death to Prove a Medical Theory

Training of Agricultural Experts

Turner, Experimenter, Mountain Climber



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CONTENTS

Letters to the Editor

I like your new format in which all of the advertisements are Soviet ones. They are well designed, and both informative and accurate.

The feature "To Spare Your Blushes", which you were running at the end of last year was quite good. Please have some more.

I am subscribing to SPUTNIK in Russian as well as in English. I hope to increase my vocabulary, which is quite limited at present. Perhaps the next time I write, I will be able to attempt it in Russian!

Kathleen Wade, Austin, Texas, USA

I am a regular reader of SPUTNIK and can say frankly that I set great store on it. From it I have found out much that is useful and interesting about the life and work of people living in a fraternal neighbour country.

The colour themes and illustrations create a very pleasant impression.

Bogdan Matuszewski, Gizysko, Poland

SPUTNIK gives a very full idea of the past and present of the Soviet Union.

It is a good thing that you publish stories by such talented writers as Yuri Nagibin and Yakov Segel, and give material about art, medicine and education.

Lilia G. Seizova, Sliven, Bulgaria

I am very fond of SPUTNIK both because of its contents and its design. I should like to see more material about the life of Soviet youth, their interests and their various clubs.

Popa Joan-Lucian, Bacau, Romania

Our whole family enjoys reading your informative SPUTNIK magazine. As soon as it appears in the house, the first person to grab it gets the whole day to keep it and read it.

Miss Shiraz Sethna, Karachi, Pakistan

Your magazine copes brilliantly with its task of keeping readers informed about the Soviet press and literature.

I like SPUTNIK because it tries to establish contact between authors and readers and because scientific articles are given in the form of stories. It is true that sometimes your material wipes out the border between imagination and reality. For example, it is still not clear to me whether the article "Was It Another UFO?" (June, 1970) was about something that had actually taken place or whether it was a fictional account.

Jürgen Lehmann, Strehla, German Democratic Republic

The article was about an actual happening.

Editor

I was very pleased to see an article on Leo Tolstoy in the June issue. He was a true man of peace.

More about peace-makers, please!

Philip Dransfield, Huddersfield, Yorkshire, England

An article about Russian music and composers, both classical and modern, would interest me. So would more about the different peoples and their cultures and costumes.

Your article about Tolstoy in the June 1970 issue of SPUTNIK was

very interesting. I would be very pleased to see similar articles on other Russian authors and their works.

Anne E. Whittbe, Lincoln, England

I should like to thank you for the article "Olympic Champ Quits the Ring" (June 1970). Valeri Popenchenko is really one of those rare amateur sportsmen for whom sport has been a means of self-education. His phrase: "If you make sport an end in itself you turn it from a friend into an enemy" could be inscribed in a marble plaque and placed at the entrance of many a sports club.

Your article arouses a feeling of deep sympathy for this engineer.

V. Bernazki, Warsaw, Poland

PEN-FRIENDS WANTED

I am 21 years old. I am interested in ballet, music and literature. Can correspond in Russian, French and English.

Iliana Malakova, bul. "Dimitar Blagoev" 17, Sofia, Bulgaria

I would like to correspond with friends all over the world. I am 19. Interested in music and collect records of modern music and viewcards. Can correspond in English, Italian, Russian and Bulgarian.

Natalia Burnazka, ul. Stefan Karadja 6 G, Sofia, Bulgaria

I would like to find friends all over the world. I study at a French secondary school. Know Russian, English and study Spanish. I am interested in arts: painting (I myself can paint a little), classical and modern music, theatre, ballet and cinema. I like to read books. I have large collections of stamps and coins. I am also interested in folk art of different peoples, in history (ancient) and philosophy.

Yulie Valeva, "Alen mak" 6, Sofia-42, Bulgaria

I would like to find new friends through SPUTNIK. I am 18 years old. I want to correspond in Russian and English. I am keen on music, painting, cinema and SPUTNIK.

Smela Nileva, ul. "Graf Ignatiev" 44 B, Sofia, Bulgaria

I am 19 years old. Want to correspond with pen-friends all over the world. Collect viewcards. Speak Polish, Russian, English and a little Spanish.

Krzysztof Abram, Dozynkowa, 9F, Poznan, Poland

I would very much like to correspond with young people from European countries. I am 18. My hobbies are postcards, stamps and periodicals. Can correspond in Polish, Russian and English.

Janina Biernat, ul. Migaty 49 m 9, Gdynia, Poland

I am 17 years old. I like sport. I am collecting viewcards and stamps. I like modern music and modern art. I would like to correspond in English.

Hanna Maik, ul. Bol. Chrabrego 30, Leszno Wlkp, Poland

I am 17. I study at a medical school. Know Russian, Polish, Latin and English. I am fond of sport, music, reading and films. I collect viewcards and stamps. I would like to correspond with friends from all over the world.

Bożena Wlodavczyk, oś. Zielone 13/26, Krakow — Nowa Huta, Poland

I am a 17-year-old schoolgirl. I am interested in painting, ballet, pop music. I collect postcards with architecture masterpieces of Asia and Europe. I am interested in architecture of America and Africa as well. I know Polish, Russian and English.

Elzbieta Przubulska, ul. Poznańska 24/6, Śrem, woj. Poznań, Poland

I am 19 years old. I would like to correspond with friends all over the world. Can correspond in Russian,

German and English. I am interested in classical music, theatre and literature. Collect viewcards.

Verena Dörrzapf, Ernst Grube Strasse 5, Brandenburg 18, German Democratic Republic

I am a 16-year-old schoolboy. I would like to correspond with boys and girls from all over the world. Can write in Russian, German and English. I wish to exchange postcards, stamps and photos of actors. I am interested in music, cinema, sport and magazines.

Klaus Weise, Neuer Weg 1, 4372 Aken/Elbe, German Democratic Republic

I am interested in having pen-friends all over the world. I am 20. My hobbies are photography, stamps and hunting. I know English and Hindi.

M. Prasad, c/o Dr. T. Mukherjee, S.N. Ganguli Road, Ranchi Bihav, India

I am eager to have pen-pals from the USA, the USSR, England and Australia. I am an Indian student of science, 16 years old. My main interests are radio, films, culture and sport.

Pradip Kr. Nandy, 24/2/1, R. M. Mukherjee Lane, Howrah-2 (W.B.), India

I am a 25-year-old graduate in civil engineering. My hobbies are stamps, photography, cards, coins, reading, music, swimming and correspondence. Can write in English and Hindi.

S. K. Tulshian, Satya Medicals, Jhunjhunu (Rajasthan), India

I would like to have pen-friends from the Middle East. I am 21. I know Bengali and English. My hobbies are photography, radio and music.

Shamsher Ahmed, 24, Dentmission Road, Calcutta-23, India

I am a 17-year-old college student, a citizen of Kenya. My hobbies are photography, philology, travelling. I can speak English, Urdu, Punjabi, Swahili. I have come to Pakistan for further education.

Sh. Javed Hassan, 214, Scotts Hostel, Murray College, Sialkot, West Pakistan

I am interested in having pen-friends all over the world. I am an artist, my age is 31. I know English, Bengali and Urdu. My hobbies are 35 mm cinematography and photography.

S.M.D. Rahman, c/o Super Block, 14 Kabiraj Lane, Dacca-1, East Pakistan

I am a Pakistani and would like to have pen-pals in as many countries as possible. I am 23 years old. I have a variety of interests including photography, movies and travel. I can correspond in English and Urdu.

M. Akbar Javed Bhatli, 944-Sarwar Rd., Mustan, West Pakistan

I would be glad to have pen-pals from all over the world. I am 18 years old. Collect stamps, viewcards and first-day covers.

S. Shahid Ahmed, 8 new Chashara Narayanganj, Dacca, East Pakistan

I want pen-friends from all over the world, especially Japan, Singapore, Australia, the USA, the USSR and South America. I am a boy of 21 employed in the Postal Department and my main hobbies are writing short stories, writing scripts for radio programmes, pop music, collecting viewcards, picture postcards, etc. I can correspond only in English.

S.S. Silva, No. 121, Temple Gardens, Thibhotugoda, Ganemulla, Ceylon

I would like pen-pals from Japan, Singapore, England, Sweden, Switzerland, America and Russia. I am 14 years old and my interests are correspondence, sports and stamps. I know English and Sinhala.

V. Jayantha C. Perera, 187, Delgahawatte Rd., Angoda, Ceylon

I would like to correspond with young people from various countries especially from Europe. I know English and Arabic. My age is 18 and I am interested in literature, viewcards and magazines.

A. Razzaq D. Al-Rashid, Frhan Hashim Hair-dressing, Baghdad str., Amarah City, Iraq

I am a 21-year-old Italian boy studying law at university. I'd like to correspond with girls. My interests and hobbies are cinema, reading, theatre, dancing, travel, arts, pop and classical music. Can correspond in Italian and English.

Gianfranco Nitti, Viale Magna Grecia 197, 74100 Toronto, Italy

I am interested in correspondence with people of other countries, especially Albania and Mongolia, and people who live on islands and island groups. I am 28 years old and I am married. I work for British Railways. My interests are reading, music, correspondence and football.

Raymond Brunt, 18 Webb Ave., Deepcar, Sheffield, England

I am a 19-year-old schoolgirl. I would like to find pen-pals all over the world. I am interested in painting, jazz-ballet and cinema. Can correspond in English and Finnish.

Irma Teräväinen, Sammatintie 8 I 72, Helsinki 55, Finland

I am 25 years old. My interests are literature, stamp and postcard collecting. I am very keen to have pen-friends all over the world. I know only English.

Than Htaik, c/o 166, "A" Block, Zegyo, Mandalay, Burma

I am a girl of 16. My hobbies are shell collecting, stamp collecting, coin collecting and listening to music. My greatest desire is to travel. I would prefer somebody who could write in English and who is 16-18 years old.

Helen Perry, Beach Road, Morphett Vale, Sth. Australia, 5162

I am eager to correspond with friends from various countries. I am 20 years old. I would like to exchange ideas on youth problems of today. I am interested in everything but especially enjoy reading and going to the cinema.

Moulay Ahmed Asidi, Amar Elhassaini derbe, El Arssa No 4, Meknes, Morocco

I am a boy of 16. I want pen-pals especially from England and West Germany. I am fond of pop music and viewcards. I can correspond in English, French and Romanian.

Andreescu Sorin, str. Grădinii 2, Cimpina, Romania

I am a 31-year-old worker and I am a philatelist. I collect fauna, flora and paintings stamps. I speak Spanish and English.

Francisco Suarez Amey, Associated 251-316, Cuban Federation Philatelic, P.O. Box 2222, Havanna 2, Cuba

I am 19 years old. I would like to correspond with young people from all over the world. I like music. Collect viewcards and photos of actors. Can correspond in Russian, French and English.

Burileanu—Alexandra-Sanda, Str. Poloná No. 68, sect. I, Bucharest, Romania

I would like to correspond with young people from all over the world. I am a 16-year-old schoolgirl. I collect viewcards, records, stamps and photos. I am interested in pop music and correspondence.

Marlen Hernandez Ponce, Sta/M[4] No. 69 et/Ulloa y Mazarredo Aldecoa, Havana (6), Cuba

I would like to correspond with girls or boys all over the world. I am 16 years old and go to grammar school. My main interests are collecting postcards and magazines, sport, beat music and languages.

Continued on p. 9

sputnik

APN, 2 PUSHKIN SQUARE,
MOSCOW, U.S.S.R.
The Sputnik is a digest published in English, French, German and Russian by the Novosti Press Agency.

SPUTNIK, the first Soviet digest, will be on the newsstands — or in your mailbox — every month. To be fully informed, read SPUTNIK, the digest magazine that reaches every aspect of Soviet life. Exciting reading for everyone in SPUTNIK: condensed articles by writers, poets, scientists, military experts, sport stars. Everybody from statesmen to the man in the street. Know the other side of controversial issues, meet the Soviet man in the street (women and children treated deferentially), keep abreast of scientific developments, get an inside line on sports, etc.

The Russian Digest condenses articles from 11,000 Soviet newspapers and magazines. You get the pick — in convenient, easy-to-read digest form.

Dear Reader,

SPUTNIK
is a vital Soviet magazine.
SPUTNIK
introduces you to the best in Soviet magazines and newspapers — in condensed form.
SPUTNIK
tells you what people are talking about: the latest in science and mechanics, important political issues, economic problems, Soviet writers, travel in our country.
SPUTNIK
contains: picture stories • facts and figures • memoirs • fashions • recipes • humour
SPUTNIK: read — be informed! We welcome your questions, comments and suggestions which will be reported in the Letters Section of **SPUTNIK**.

Sincerely,
The Editors

On front cover:
Kirghizian motif
by Kirik Orlov

PHOTO AND PICTURE CREDITS

Vladimir Kuchin, Nikolai Pavlov, Igor Konstantinov, Nikolai Nemnonov (pp. 10—19); Victor Arsiry (pp. 20—21); APN (pp. 24—27, 32—39, 58, 64—75); Andrei Voznesensky (pp. 45—47); Pavel Sazhin (pp. 49—51); Georgi Zelma (pp. 53, 56, 60); Leonid Raskin (pp. 54, 55, 57, 59); Yevgeni Volkov (pp. 102—103); Rudolph Kucherov (p. 105); Dmitri Donskoi (pp. 106—107); Vadim Gippenreiter (p. 116); Alexander Uzlyan (pp. 117, 123).

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Sputnik is published in English, French, German and Russian.

OTAVA · HELSINKI, FINLAND

LETTERS TO THE EDITOR
Continued from p. 7

I can speak English, Russian, Hungarian and a little French.

Catherine Szaló, Szíber u. 93, Budapest II, Hungary

I am a 23-year-old cartoon film producer and I work in the "National Cartoon Telefilms". I would like to have pen-friends from all over the world. I am interested in photography, records and viewcards. Can write in Spanish and English.

Rafael M. Schmidt, Ave. 251 N. 8800-88-90, Reparto La Cumbre, Havana-10, Cuba

I would like to correspond with people in the USSR and Asian countries, especially with those who are keen on body-building and winter swimming. I collect stamps, like music and cinema. Can correspond in Russian, English and Polish.

Jan Kluczyński, ul. Wiejska 31, Bedlewo, p-ta Bedlewo, p-at Poznan, Poland

I would like to have pen-friends all over the world. I am an 18-year-old girl student. I am interested in physics and photography and like travelling. Collect viewcards, stamps and records. Can correspond in Russian, English and Polish.

Elzbieta Podlaska, ul. 27 Lipca 11/17 Bialystok, Poland

I would very much like to find friends by correspondence. I am a 21-year-old girl student. I am keen on history of Poland and other countries and archaeology. I like geography and books. Collect stamps, postcards and match-box labels. Can correspond in Russian, English and Polish.

Maria Vrobel, ul. Armii Ludowej 8/7, Krakow, Poland

I am a Pole of 19. I study and work. Collect stamps, postcards and records. Like sport, music, books, cinema and theatre. Can correspond in Russian, English and Polish.

Zbigniew Bereza, Garwolińska 16a-62, Warsaw 44, Poland

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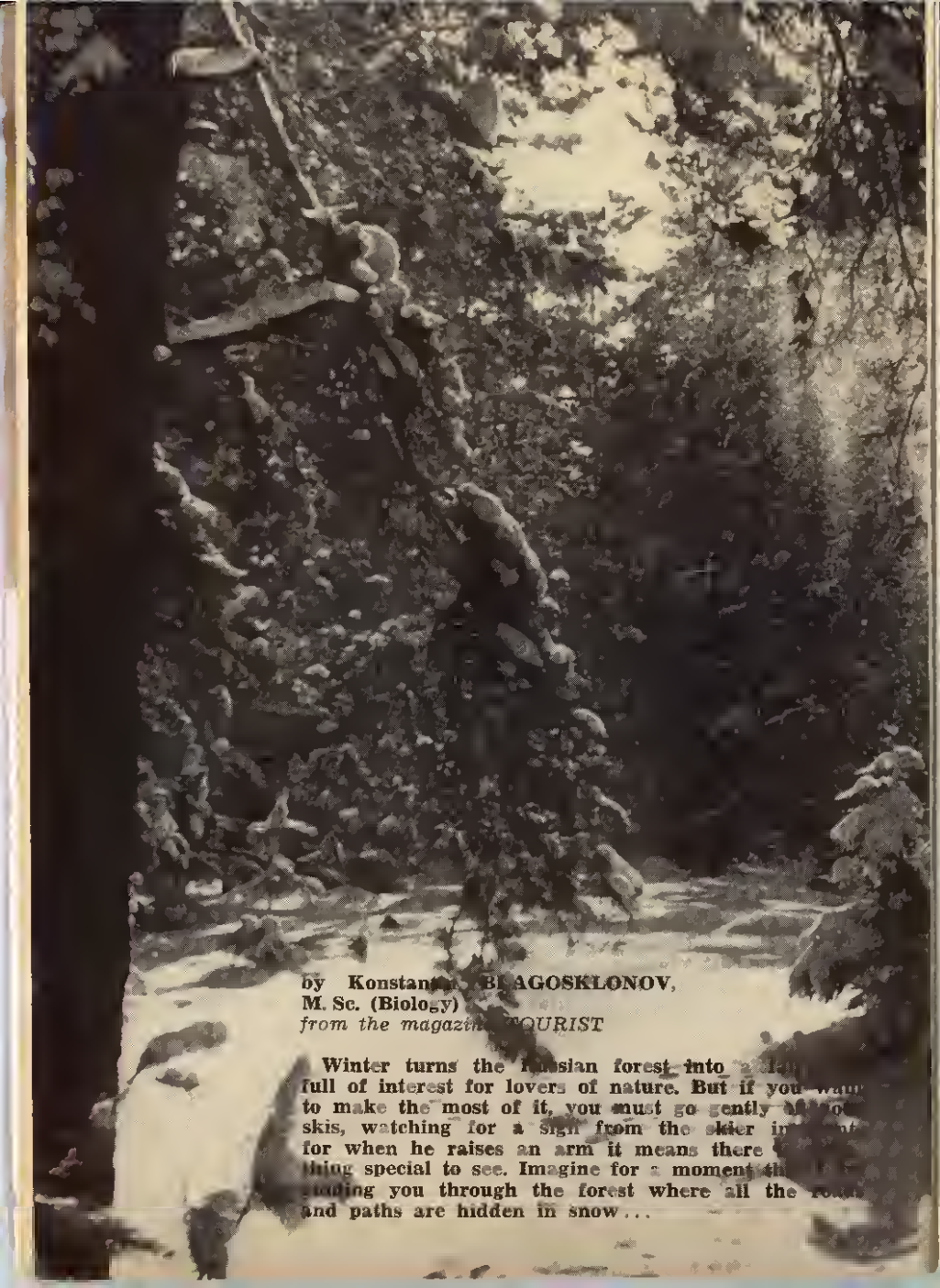


A Winter's Day in the Forest

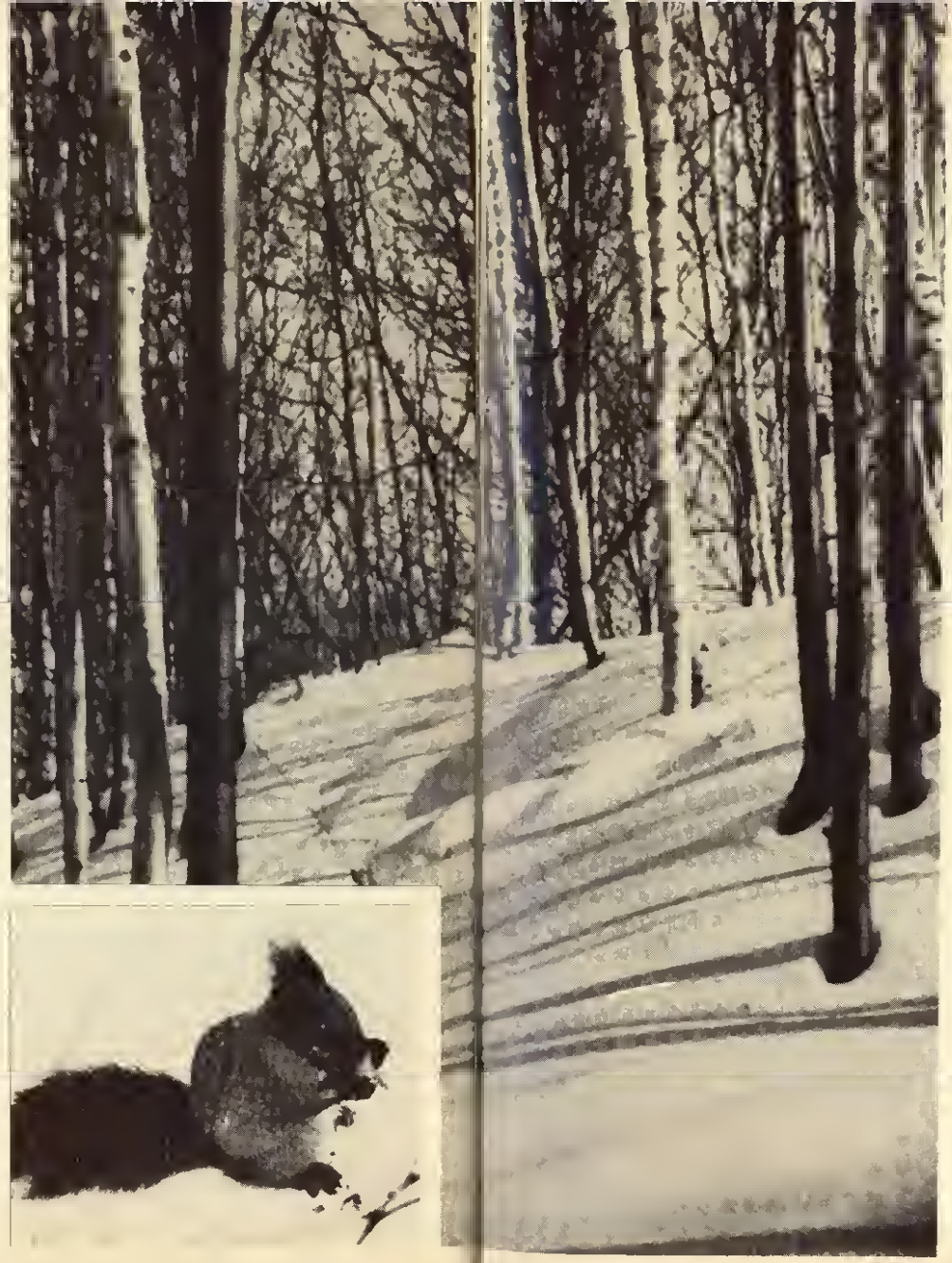
by Konstantin BLAGOSKLONOV,
M. Sc. (Biology)
from the magazine TOURIST

Winter turns the Russian forest into a [illegible] full of interest for lovers of nature. But if you want to make the most of it, you must go gently [illegible] skis, watching for a sign from the skier in front for when he raises an arm it means there is something special to see. Imagine for a moment that I am guiding you through the forest where all the roads and paths are hidden in snow...

The firs seem to be brooding under their white caps of snow, while that slender birch bowed down by a mass of snow will stay forever bent. And don't those small firs, their green needles showing here and there, seem to be wearing little white fur coats?

But stop! About twenty yards ahead snow is slithering from a fir branch, and as it cascades down, it gathers up snow lying on other drooping branches until the whole mass crashes to the ground like a small avalanche. In its wake a cloud of powdery snow sparkles in the sunlight, to remain for a long time suspended in the still air until it slowly settles.

Now we can see what caused that snow slide. See that tiny brown speck swirling in the midst of the snowy cloud? It's a pine seed, and it means we disturbed a squirrel at its dinner. It must have sprung suddenly to a neighbouring branch or tree and set things moving. If you have a closer look under the tree you will see further proof that a squirrel was there — the snow on the ground is carpeted with fircone scales, and there are holes in the snow. The squirrel cannot be far away in this open place with only small birches around. And there it is, perched on a high branch of the fir from which the snow fell. Motionless as if turned to stone, it has its head cocked to one side in our direction, and



you can see the curve of its tail. But let's move on . . .

Hear that distant knocking sound in the frosty air? Let's go that way — it must be a woodpecker. And there it is, on that dry pine bough. It's a female, as you can see from its colouring — it is black and white, with a red patch under its tail, a black cap on its head and without the red stripe at the back of the neck that distinguishes the male. She is not taking any notice of us, but keeps pecking away at a cone, twisting it this way and that in the hollow of the bough — her little workshop. Having done this, she flies off to alight on a nearby fir, and there she is again at her "forge", with a cone in her beak. Now she looks around, her breast pressing the cone against the tree trunk. With her beak she begins to pull out the old cone from her "forge" and suddenly she drops the new one. Without a glance below, she flies off to pick another cone. This time she makes a good job of it, and she pecks away, picking out the seeds.

In the spring the cones will dry out in the sun, the scales will open out and the seeds will be borne away by the wind, leaving the squirrels with none to eat — all they will have will be fir buds to nibble at (you can always tell when there are hungry squirrels about by the masses of chewed twigs on the snow under the trees). Then they find the cones dropped by the woodpeckers, still full of

seeds as they have been preserved in the damp earth after the snow has gone. That helps the squirrels through a lean time. Good years for fir cones mean a lot for the species feeding on them — crossbills, as well as woodpeckers and squirrels. But in "hungry" years when there are not so many cones they all have a hard time, and the squirrels either have to move away or die. The crossbills disappear, too, and even stop breeding in such winters as they must feed their young with fir-seed pap.

Now we find ourselves in a little aspen grove. It's not a tree much valued by man for utilitarian purposes, because it grows as rapidly as the poplar and within 30 years its trunk rots at the core, so it is of little use as timber. But it is certainly valued by the forest denizens, such as the elk, the hare, the red forest vole and the beaver, because they all feed on its bark in the winter when there is little else for them to eat. And woodpeckers like aspens, too, for its rotten wood gives them a good chance to peck out a hollow for a nest, where the bird will raise a single brood of young. After that the hollow will be used for years by other birds — tomtits, pied flycatchers, starlings, redstarts and nut-hatches. The total result is that the aspen attracts many birds, and they are the forest's best protectors against many pests.

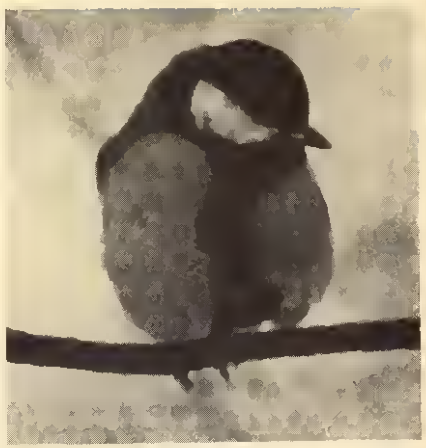
If you look over there you will see a lot of small misshapen aspen trunks stripped of their bark, a sure sign that an elk has been around — you can even see the marks of its teeth. You will notice that the trunks have been gnawed from one side only, as a rule. The elk is clever enough not to destroy this source of winter fodder by chewing the bark all around, which would kill the trees — it gnaws the tree from one side only, and then the bark grows over the wound again, keeping the tree alive. The aspens which have been chewed all around and have died are those which have been chewed by more than one animal. However, the elk is not so easy on the pines — it nibbles all the young shoots, and if an elk finds a young shoot out of reach, it just breaks the young tree down and chews up the shoot as it lies on the snow. If there are a lot of elk around, they can do much damage in a forest — some reserves near Moscow have been denuded of all pines older than 20 or 30 years

and when the animals multiply too fast in some places they have to be shot, thus preserving the natural habitat of other useful animals.

From the tracks left by birds and animals, one can read the snow like a book. You will come across bird tracks quite unexpectedly like this one left by a bird which sprang out from a bush, leaving the track of its feet as it hopped away. One can see that it is not a hazel grouse, which leaves a track like little crosses. I think it must be a jay or a magpie, but let's follow it and try to find out, because sooner or later we will see where it has taken to the air, leaving more tell-tale marks on the snow. And here they are — just where the tracks of the feet have ended, you will see to left and right the imprint of the bird's wings on the snow, like a fan. And behind is the mark of a long tail. It shows the bird must be a magpie, because a jay has a fan-shaped tail.

Sometimes the tracks you come across suddenly in the snow are made by a squirrel jumping from a tree to the ground, leaving its own distinctive marks of oblong-shaped paws, the hind paws being spread out at an angle.

If the weather is warm mice and voles emerge from their nests under the snow, but they don't stay long on the surface. A mouse leaves only a short track, ending



in a little hole in the snow. Then there are the hare tracks — they are in every Russian forest. This one whose tracks we can see is a blue hare, the only kind living deep within forests. Other hares live in the fields or on the forest edges, and there are not many left in central Russia. The blue hare turns snow-white in winter, only the ear tips remaining black. It leaves a distinctive track, the toes of the hind paws spreading wide so that the print is huge. When winter approaches, its paws become overgrown with long, stiff hairs, and these, when the weather is warm enough to make the forest snow loosen up, act like skis to prevent the hare from sinking too deep.

Hare tracking can be quite an enjoyable sport, even if it does take you a whole day to follow the tracks without coming upon your quarry, as often happens. In any case, it is interesting to observe from its tracks what the hare has been up to in the forest in winter.

Take this one — the prints have led us to a small marsh with an osier bush growing near it. You can see by the many prints in the snow, the gnawed bark of the bush and the flattened nuts of manure left on the snow that the hare chose this as a feeding place. It would be hard even for a skilled hunter to find where the hare went after his evening

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Don't Let Talent Go to Waste!

by Georgi RADOV
from the weekly
LITERATURNAYA ROSSIA

The work of the ploughman has always been three parts inspiration, and modern, mechanised farming remains in the same class. Engineers, mechanics, agronomists and livestock experts must not only be well trained—they must have real talent. This article touches on the problem of training suitable people, of nurturing local talent.

The Cossack Edison

When I was still a cub reporter I made friends with Nikolai Grubich, then known simply as Kolya. He was top tractor driver in the Cossack village of Novotitarovskaya, in the Kuban. I thought he was not merely talented but a genius at his trade.

That was in the early days of collectivisation, when the farms were crying out for machines. We were only just starting the production of our own tractors in the Soviet Union, and most of the machines on the farms were old crocks bought a long time before from abroad. There were no spares available for them, of course, and the young mechanics were often stuck. But Nikolai was incredibly ingenious and could think up all kinds of

tricks to get those foreign tractors going. He would do his stuff, give a couple of cranks, and they would crawl off, cowed.

His ideas never seemed to dry up, and he would hand them out right and left to others, although there was no official recognition for his services in this line. But he was rather proud of the unofficial recognition — his fellow workers christened him "Edison", and he kept the nickname for a long while.

It was a mystery to many people how Kolya, who had only handled a wooden plough in the past, so quickly picked up the know-how of these complicated machines and seemed to understand their very soul.

A long time later, about twenty years, I dropped in at Nikolai's cottage on the outskirts of Krasnodar while on a visit to the Northern Caucasus. He was working at a small factory, still busily inventing, and now receiving bonuses for it. He showed me a magazine article about himself and another man, an engineer as far as I recall, and about something they had invented for saving tractor fuel. So he had retained his love for tractors and for inventing all through the years. Nikolai had never had any education to speak of, however, and I remember my thought as I read that magazine item: What a marvellous designing engineer he would have made had he left the seat of his tractor and gone to school and later to college.

Should We Reproach the Past?

Writers and farmers had gathered for a kind of round-table discussion recently in that same collective farm village. The subject was how to spot talent among the collective farmers and how to prevent its being wasted on trifling matters or languishing altogether unused.

Alexander Berezhnoi, a veteran farm machine operator, made this point:

"In the old days any collective farm chairman could very easily be parted from a mediocre worker. He would send him off to study without the slightest objection. But you wouldn't have got him sending off the types that ought to go — good mechanics and team-leaders."

There was both truth and bitterness in this remark. But should one upbraid the Communist Party, government and economic leadership for their attitude in those difficult times?

Take Kuzma Yeremyshko, from the village of Rodnikovskaya. "He's got the head of a minister," people say. He went to primary school, and that was all the education he got. Yet he managed the affairs of his farm — a large enterprise engaged in mixed farming — and did it well.

It is not hard, of course, to imagine how much better he could have done it if talent had been reinforced with knowledge. But we also have to try to imagine how the farm would have got on without him.

Even as a team-leader he was renowned all along the coasts of the Azov and the Black Seas, and his fame spread still further afield as a result of his work as farm chairman.

Would it really have been for the greater good if he had gone off to study?

It was the efforts of people like Yeremyshko, their determination and talent, that kept the country going. They led the way, the peasants followed; they fed the nation, and it was because of what they did that we students of those years were able to go to college.

There is wastage in every period of history, and this was something we could not avoid. Of course we must regret that these able people did not study, and we should draw the necessary conclusions for today and tomorrow.

When these outstanding workers had a chance to leave their tractors, combine harvesters or field teams for school or college they later became highly qualified experts.

I am sorry never to have met Konstantin Borin. But all the while I have followed his achievements in the press, and from stories told by his friends. He is the first driver of a combine harvester in the Soviet Union to gain his M.Sc. And it was only very late in the day that I met Praskovia Kovardak, the first woman Cossack to become a tractor driver.

After doing a course at the Timiryazev Agricultural Academy in Moscow she became an agronomist, but not a run-of-the-mill one, by any means. The section of the state farm under her supervision is not merely good, but superb, with everything done in the most organised, scientific and modern way. Her crops are unusually high — and so are the profits they bring the farm.

This is what comes of talent if it is properly encouraged and developed.

But sometimes, capable country boys and girls miss the chance through some circumstances, or impatience — developing a passion for machines very early, they cannot wait to get up on a tractor and start doing things, and do not finish their secondary education. They begin working, start a family later on, and as the years go by it becomes more and more difficult to get a school-leaving certificate and enter an institute.

But in present-day circumstances a collective farm can in fact afford not to indulge in such

Days--at the wheel of a tractor. Nights--at draughting-board.

wastage. It can afford to send promising people off to study and to pay their expenses. So what is the answer?

Sasha Sorokaletov Gives an Answer

It was morning, and the combines were huddled together at the margin of the field. The drivers were perched along the edge of an irrigation canal which had been emptied the night before. The muddy earth was still full of squirming gudgeon and small fry, and a stocky suntanned young man in swimming trunks was walking along the canal bed catching little fish. For cats, probably — they would hardly do for anything else.

He came up from the mud, dressed and lit a cigarette. I could see from the way the drivers were looking at him that this was the favourite, a character you find in any collective of workers, whether they are driving tractors or engaged in construction or assembly. He immediately got cracking with his jokes and funny stories, and laughter rang out over the steppe.

"He's off!" Fyodor Turluchyov, a team-leader, said admiringly.

It's a bad vet who has not shepherded a flock. For these young people all lies still in the future.

"He's a jolly good turn."

"Frivolous type?"

"Nothing frivolous about him, mate!" The man seemed surprised. "That's Sasha Sorokaletov!"

Then I recalled that the evening before he had been presented by the collective-farm board with the first prize for harvesting, and realised that this was the man whose name I had come across so many times in the file of the local newspaper.

The next day one of the drivers gave me a lift out to the fields where Sasha Sorokaletov was working. Sasha had in fact been his pupil. On returning from his army service, Sasha, who had been through only six classes at school, finished his secondary education at evening classes and was about to apply to enter college.

"To do a correspondence course?"

"No, he wants to be a full-time student."

Sasha, he told me, was nearly thirty and had a wife and children, but that did not deter him.

Later I asked Sasha himself about his plans. While not disapproving of correspondence courses in general, he felt he would like a more thorough education, especially as he was not going into the mechanical engineering department, where he would have had a head start, but to study agronomy. Why not the other? Well, apart from anything else, he knew rather a lot about farm machinery already.

"How about your family?"

"My wife's all for it," he told me. "All she'll have to do is fork out thirty roubles a month from her wages for pocket money for the poor student!"

"But you'll be parted for five years. Won't she mind?"

"Well it's not quite like that. The Kuban centre is only an hour's flight from here, so I'll be home at week-ends — and then there'll be holidays."

Why was he so late finishing his secondary education, I asked. He gave me a rueful look. "Case of delayed ignition," he replied, tapping his forehead.

No one was trying to talk him out of leaving the farm temporarily. On the contrary, there was nothing but enthusiasm for the idea.

Andrei Khomyakov, one of the ablest collective farm chairmen I have ever met, said: "Thirty roubles from his wife, indeed! He's joking! Of course that won't be necessary. We'll give him a good allowance. He'll get a lot done here when he's finished that course!"

Whatever villages I have visited on innumerable trips made to the countryside over the past two years, I have noticed an entirely new attitude to this question of collective farmers going off to study.

Many do not go off anywhere, but study by correspondence — an example was a tractor driver who went through school, junior college and college while going up the ladder to team-leader and workshop manager. Now he is chief engineer of his farm, and a very good one, too.

Wheat, raised by your own hands, by your own labour--it means something!

There are 98 agricultural colleges plus agricultural departments at a number of universities in this country.

The agricultural colleges train specialists in all fields of farming. These are not narrow specialists, for their college programme cuts across all branches of agriculture.

The enrolment boards give preference to young people from rural areas who have engaged in agricultural production for two or more years. Collective and state farms can send to college their most promising and hard working members. On finishing the course they return, as a rule, to their native parts. Scholarships for such students come from the collective and state farms they hail from.

There is also a ramified network of correspondence courses in the USSR. At present all agricultural colleges have correspondence courses. The term of education here is 6 years. The correspondence students have certain privileges set up in accordance with our labour legislation (paid leave during examination sessions, etc.). Those who have finished correspondence departments receive diplomas which give them the same opportunities as any other college graduation certificate.

Over the past five years the farms have taken a more active interest in promoting local talent, and instead of waiting for applicants have shown an eagerness to select candidates to send away for training, paying their expenses and giving them an allowance.

A contributing factor is that farm chairmen feel in a more stable position. There was a time when their tenure of office was very insecure, and so a tendency arose to think primarily of today, and not tomorrow. He needed a particular young man on the farm right then, to help him get good results so that he would not be thrown out of his own job. Now that the collective farms are in a healthier position chairmen can take a longer-term view, think of training youngsters to take over from older people at some time in the future.

So the situation has changed radically.

After the Diploma

A qualified engineer or agronomist who returns to his own village has experience and ability, and knowledge, too. Furthermore, his years of study have developed in him a taste for work on the land. Such a person can move mountains! He often does! Experience has shown that experts with such a background are best able to meet the demands of agriculture today.

Generally speaking, college graduates who go back to their own villages after graduation have little difficulty finding employment. The demand for farm engineers and other experts is constantly increasing.

Nevertheless, some farms find themselves in a difficult position.

I know one where the chairman is past sixty. He is still going strong, and definitely has enough energy for another five years work. He has a vigorous mind and welcomes useful innovation.

The chairman's two assistants, however, with whom he has worked for fifteen or twenty years, have grown old physically and mentally. Despite all the chairman's efforts, the collective farm is held back, and the upshot is that young, capable people, "home-grown" experts, are leaving right and left, not waiting for promotion. They have worked hard for their qualifications, but the jobs for which they are trained are held by old stick-in-the-muds. The chairman is afraid to do anything about it — after all they are only the same age as himself.

But something has to be done, however delicate a matter it may be.

Some farms have solved that particular problem.

On one farm in the Kuban the chairman "rejuvenated" his personnel over a period of three years. The operation was carried out inoffensively and painlessly. Team-leaders who, despite all their past services, now stood in the way of advance and the promotion of young experts, were offered pensions or a less difficult job "in the rear", tribute being paid to the work they had done. Well-trained young engineers and agronomists have taken their place — to the distinct advantage of the farm.

I am getting on for sixty myself, and it is not altogether easy or pleasant to be discussing this point — it is too near home. But older people who refuse to recognise their own shortcomings and occupy jobs that are now beyond them and could be filled by better-trained and more energetic youngsters have to be told the unpalatable truth.

I am not, of course, making a sweeping statement about all the over-fifties, but simply talking of those who cannot cope with their responsibilities.

But that is a subject for another article, and I have mentioned it only as it relates to my main theme here, which is: never let a single manifestation of local talent be stifled — tend it carefully.

Atomic Power Station for the Arctic

The new mobile atomic power station "Syever" (North) will soon be shipped to the Arctic where it will operate in the rigorous climate of that area.

In an interview with a correspondent of the newspaper Sovietskaya Rossia, a condensed version of which is printed below, one of the designers of "Syever", Yuri Sergeyev, describes its merits.

In the temperate zones of the Soviet Union fuel and electric power are no problem. But the situation is different in the Arctic area, like the Chukotka Peninsula, for example, where the heating season lasts 270 days a year.

Before reaching Chukotka fuel is transported over long distances, often in several stages. The caravans of ships which leave northern ports in the European part of the USSR are in a hurry to get through the Arctic ice to the east in order to unload on the coasts of Chukotka and the adjacent areas the necessary amounts of fuel during the short season of summer navigation. And later, with the coming of winter, when a hard sheet of ice forms over swamps and marshes, hundreds of lorries get down to work taking the fuel to different places. Sometimes it so happens that the lorries do not manage to move out all the barrels before the spring floods. Then there is nothing left to do but carry it by plane in which case the price of each ton of fuel rises to as high as 200 roubles.

Power industry is given top priority in Siberia and the Far East. A pipeline now stretches to Norilsk (the north of Eastern Siberia) from the rich gas deposits discovered in Western Siberia. The Vilyuiiskaya Hydro Power Station, the first of its kind built on permafrost, was recently launched and a power station using subterranean heat is now operating in Kamchatka.

But the rapid economic development of Chukotka and other areas in the Far North require additional sources of electric power. To fill this need a nuclear power station, "Syever", has been designed.

The station is of 1,500 kilowatts (the same as the diesel power stations that operate here). This amount of electricity is big enough for a small town with a population of 3,000.

Unlike the diesel installations, "Syever" provides not only electric power but also hot water necessary for heating houses. The amount of water that comes from the station's power plant is enough to keep the entire community warm, even in the coldest of weather.

The heat from "Syever" can also be used for melting frozen soil thus making it possible to work the rich mineral deposits of the Far North throughout the whole year.

It is a very dependable machine that, in case of accident, automatically stops the nuclear reactor.

"Syever", just like all other Soviet atomic power stations, is equipped with reliable "biological shielding" which completely eliminates radiation.

The liquid and gaseous waste is also cleared of radio-active substances.

It is very easy to operate for which only two or three people are needed.

The atomic furnace can function up to three and a half years non-stop on a mere handful of nuclear fuel charged into the nuclear pile. At the same time a conventional power station of this capacity would require thousands of tons of solar oil.

"Syever" weighs 360 tons. The whole station is dismountable and can be transported in sections, each weighing about 15 tons or even less. Such a load can be lifted by an ordinary plane, to say nothing of a giant like Antaeus (AN-22) which can lift 80 tons.

Normally the station works on just one pile. But this is not the limit by far. Another, or even several piles can be added to increase its power. For example, with two piles its capacity doubles from 1,500 to 3,000 kilowatts. At the same time its weight increases only 50%, while the number of service personnel remains unchanged.

The use of the "Syever" atomic power station will bring light and warmth to the people of the Far North and will help develop the vast riches of this rugged country.

The national emblems and flags of the USSR and the Union Republics

(at the request of readers)

The fifteen sovereign republics that form the USSR occupy one-sixth of the earth's surface (22.4 million square km.), with a population of 241,748,000.

Each republic has its state language which is used at schools and in legal procedure. Laws are also written in the state language of the sovereign republic. Each republic has its own civil and criminal codes, as well as the Principal Law, or the Constitution. Each republic, according to its constitution, elects its own Supreme Soviet (parliament) and has Council of Ministers (government).

Each sovereign republic has an anthem, flag and emblem. The emblems of the Union Republics reflect the specific features of each one of them as well as the features common to all of these republics that form the union of workers and farmers engaged in peaceful labour. The criss-crossed sickle and hammer is the centerpiece of the national symbol of the USSR. There are no weapons or any other symbols of war in the Soviet national emblem.

Right from the creation of the Soviet Army (in 1918) the red five-point star became the symbol of the armed forces of the republic of workers and peasants. And the red star, which is part of the state emblem, symbolizes our military power and the inviolability of our frontiers.

The rising sun is the symbol of faith in the bright future of mankind (the globe is the symbol of mankind). The ears of corn stand for the fertility of the mother earth, the symbol of peaceful labour.

The union of the fifteen equal sovereign republics is symbolized by the red ribbon which winds around the ears of corn fifteen

The Coat of Arms and the flag on this page are the official state symbols of the Union of Soviet Socialist Republics (USSR). Their description is given in Articles 143 and 144 of the Constitution of the USSR. Constitution Day, December 5, is a national holiday in this country.

Russian Federation

Living on the 17 million sq. km. are more than 100 nationalities, a total of 130 million people. Since 80 % of the population here are Russians, the state language of the republic is also Russian. The Federation includes the Far East, Siberia, the Urals, all the old cultural and industrial centres of Russia. Capital: Moscow.

The Ukrainian SSR

Population — 47 million (77 % Ukrainians). Area — 601,000 sq. km. Mostly flat country in the black earth zone. Mild climate. Developed farming. Coal mining, metal smelting and machine building. Holds second place in population density. State language: Ukrainian. Capital: Kiev.

Byelorussian SSR

Population — 9 million (81 % Byelorussians). State language: Byelorussian. Area — 207,800 sq. km. Hilly country; many lakes and marshes. In Soviet times a developed industry has been built — manufacture of heavy-duty trucks, production of building materials; forest chemistry. The rate of rural housing construction is the highest in the Soviet Union. Capital: Minsk.

Uzbek SSR

Population about 12 million. The large arid but fertile plateau between the Rivers Syr Darya and Amu Darya. In the south the plain is dissected by the spurs of the Tien-Shan and Pamir Mountains. Total area, 449,000 sq. km. The greatest cotton producer in the USSR. Metal industry. Capital: Tashkent.

Kazakh SSR

Gigantic plain between the Caspian Sea in the West and China in the East. Area 2,715,000 sq. km. Population 12,850,000. The bulk of newly developed virgin lands is located here. The Soviet Union's largest deposits of copper, lead and tungsten. The highest rate of population growth in the USSR. Cosmodrom Baikonur. Capital: Alma Ata.

times. On each winding the international communist slogan "Proletarians of all countries, unite!" is written in the state language of each of the 15 republics of the USSR.

The national and geographic characteristics are reflected in the emblems of the union republics — flax and clover in the emblem of the Byelorussian SSR; grapes and vine in the emblems of Armenia, Georgia and Moldavia; cotton in the emblems of Azerbaijan, Uzbekistan, Kirghizia, Turkmenia and Tajikistan. Moldavia decorated its emblem with corn cobs and fruit; Lithuania with oak branches, and Estonia with fir fronds.

The emblems of Armenia, Georgia, Kirghizia include snow-clad mountains; sea in the Latvian emblem; an oil derrick in the emblem of Azerbaijan; a carpet in the emblem of Turkmenia; the traditional national ornament in the emblems of Georgia and Kirghizia.

Traditional folk symbols have also found their place in the emblems of the sovereign republics. For example, clover for the Byelorussians means loyalty and constancy while flax stands for love of labour. With Lithuanians, as well as with many other peoples, oak leaves mean power, strength and glory.

Georgian SSR

Predominantly mountainous country in Central Trans-Caucasus. Area 69.7 thousand sq. km. Subtropical climate. Health resorts on the Black Sea coast. The nation's largest citrus, tea plantations and vineyards. Wine making. Metal smelting. Ancient crafts. The population of 4,688,000 is evenly distributed between town and country. Capital: Tbilisi.

Azerbaijanian SSR

The distribution of population (over 5 million) is highly uneven in an area of 86,000 sq. km. in the Eastern Trans-Caucasus. Its main concentration is in the fertile foothills and in the valleys of the Rivers Kura and Arax and along the coast of the Caspian Sea. Rare variety of climatic zones, flora and fauna. The leading producer of wheat and cotton in the Trans-Caucasus. Oil production. Capital: Baku.

Lithuanian SSR

Flat country in the basin of the River Niemen. Mixed forest. Navigable rivers. Mild climate largely depending on winds from the Atlantic. Population over 3 million (80% Litbuanians). Area 65,200 sq. km. Developed industry and agriculture. Acceded to the USSR in 1940.* Capital: Vilnius.

Moldavian SSR

Completely ploughed up hilly forest-steppe between the Rivers Dniestr and Prut. Black earth podzol. Large vineyards, developed vegetable and maize production. Heavy industry built in Soviet times. High population density: 3,572 people living on 34,000 sq. km. High rate of population growth. Wine-making a leading industry. Capital: Kishinev.

Latvian SSR

Stretches over 500 km. along the Baltic coastline. Area 63,700 sq. km. Population 2,365,000, two-thirds of which lives in urban areas. Developed industry and agriculture. Electronics, electric mechanisms, various instruments, transport manufacturing works. Fishing. Capital: Riga.

* At the same time as Latvia and Estonia

Grapes and vine stand for abundance, cotton means the generosity of nature and the skill of farmers, fruit means fertility. Mountains in the emblems of some of the republics speak for firmness, confidence and strength.

The colours chosen for the emblems also have a profound symbolic meaning. The dominant colours, after red, gold and white, is blue (light blue and turquoise) and green. Blue stands for grandeur, beauty and vigilance. Green for hope and faith.

December is the month of the birth of the USSR. The congress of representatives of the Soviets, held in December 1922, endorsed the union of four Soviet republics: the Russian and the Trans-Caucasian Federations, the Ukraine and Byelorussia. In the summer of the next year the text of one single constitution for the whole of the USSR was adopted. In it the national emblem was described for the first time.

In 1936 some of the articles of the Constitution of 1923 were revised. Over the intervening fourteen years industry had made great headway and most of the peasants had gone over to the collective mode of farming (collective and state farms). These important social changes on such a scale were to be reflected in the Constitution.

Kirghiz SSR

Situated in the north-east of Central Asia. Area 198.000 so. km. mostly in the Tien-Shan Mountains. High ridges alternate with deep valleys. Sharply continental and dry climate. Rich deposits of rare and non-ferrous metals. Hydro-power potential 135 thousand milllon kw.h. Population ahout 3 miillon. Capital: Frunze.

Tajik SSR

Situated on the high Pamirs plateau hordering on Afghanistan and Chlna. Most of the repuhlic's 2,900,000 populatlon lives in fertlie valleys: the Ferghana, Ghissar and Vakhsh Valieys. The urhan population has, in the years of Soviet rule, increased almost 10 times. Slik, cotton, mining industry. Area 143,000 sq.km. Capital: Dushanhe.

Armenian SSR

Borders on Turkey and Iran. Rocky plateau. Delicious grapes raised that go into the making of world famous Armenlan cognacs. The land is rich in gold, copper and rare metals. Sixty per cent of the natlonal income from industry. Population 2,493,000. As a nation the Armenlans have lived in Western Asia slnce the first mllleninm B.C. Capital: Yerevan.

Turkmenian SSR

Situated in the south-west of Central Asia. Area 488,000 sq. km. mostly sand desert. Mountains in the south, the Caspian Sea in the west. Climate dry and hot. Its population (2,158,000) concentrates in oasis towns and on the sea coast. Production of oil and gas. Quality cotton and Perslan lamh. Stud farming. Capital: Ashkhahad.

Estonian SSR

Situated on the Baltic Sea. Area 45,100 sq. km. Population 1,357,000. Vast flat depression wrought hy glaclers. Mild sea climate. Ahout nine per cent of the territory is insular (800 islands). The economy is predominantly industrial; intensive agriculture. Capital: Tallinn.

In the course of a nation-wide debate on the new text of the Constitution much was said about the need for changing the national emblem as well. The archives of the constitutional commission contain several hundred letters whose authors insisted that the national emblem must reflect the technical progress achieved by the country in the years of Soviet rule.

The archives of the constitutional commission contain several hundred letters whose authors insisted that the national emblem must reflect the technical progress achieved by the country in the years of Soviet rule.

The workers of Magnitogorsk in the Urals suggested that the emblem should incorporate a tractor, pneumatic hammer and a derrick crane. And many more considered that the sickle and hammer, as tools of the past should be replaced by a combine harvester, a blooming mill and an electric motor. Finally the point of view of Leningrad's metal workers prevailed over all other. In their letter they wrote:

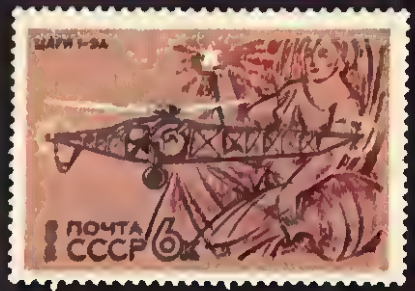
"The point is *not* that the sickle is an old tool and the harvester is a modern machine. The sickle and the hammer symbolize not technology but the everlasting unity of workers and peasants. Our mothers embroidered the hammer and sickle and the words "Proletarians of all countries, unite!" on pieces of bunting. The emblem must not be changed. May it inspire our children and grandchildren as it inspired our fathers."

Stamps

A series of postage stamps with polychrome miniatures is devoted to the history of Soviet aircraft construction from the first all-metal craft (the ANT-2) to the first supersonic passengers plane, the TU-144. The series, consisting of a block and eight stamps, is designed by Anatoli Aksamit.

Subject of stamp	Denomination
ANT-2	2 kopecks
PO-2 (U-2)	3 kopecks
ANT-9	4 kopecks
TsAGI 1-EA	6 kopecks
ANT-20 "Maxim Gorky"	10 kopecks
TU-104	12 kopecks
MI-10	16 kopecks
IL-62	20 kopecks
Subject of block	
TU-144	50 kopecks

Printed by intaglio and metal engraving. Stamps have harrow perforations, 52×37. Catalogue numbers 3869—3876. Block unperforated, 90×65. Catalogue number 3877. The series issued by the USSR Ministry of Communications in 1969.



TRADITIONAL FESTIVALS OF THE ARTS IN THE USSR - A PARADE OF STARS!

Each year these festivals are held in the USSR:
May 5—13 in Moscow — "Moscow Stars"
June 21—29 in Leningrad — "White Nights"
December 25—January 5 in Moscow — "Russian Winter"

On the festival programmes are the finest operas and ballets, the finest symphonic, instrumental and vocal works; we present the art of the peoples of the USSR — their music, their songs and dances, their concerts and circus shows.

Special festival tours may be bought from INTOURIST. Only during such festivals can you see the whole diversity of talent of the best of our Soviet artists.

Festival tours are sold at special anvantageous rates.
They include visits to pertormances on the festival programme: a 5-day tour includes 4 visits to the theatre, a 10-day tour includes 8.

Apart from that, the "Russian Winter" Festival includes a gay NEW YEAR celebration. Some unusual entertainment awaits you: **only in Russia** can you go sleighing in a "RUSSIAN TROIKA", take part in a Russian ring dance round the New Year tree, try Russian pancakes and drink a glass of Russian vodka.

Tourists are guaranteed excellent service, comfort and unfailing Soviet hospitality.

WELCOME TO OUR FESTIVALS IN THE SOVIET UNION! GREAT FEASTS OF SOVIET ART!

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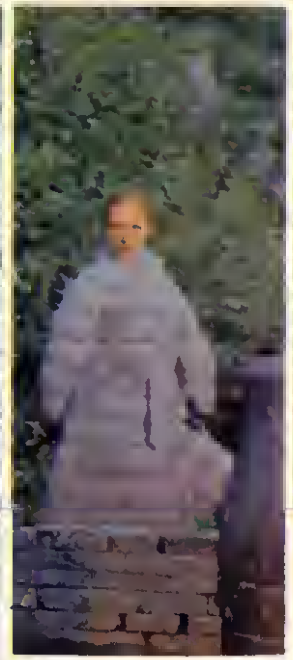
Intourist

Winter fashions

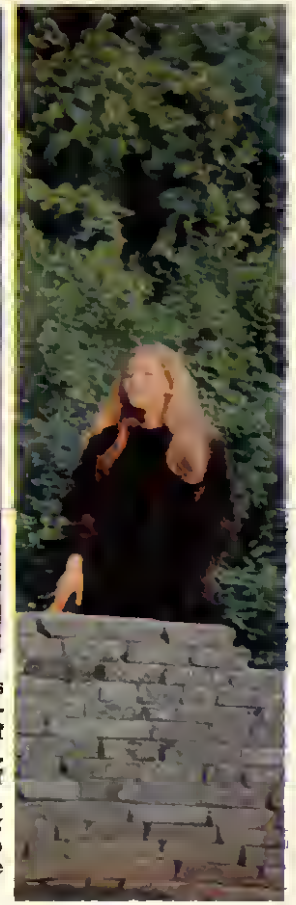
A designer must exercise much imagination and good taste in order to ensure his creation is attractive and does not appear old-fashioned. SPUTNIK presents some of the latest designs on these pages.

No one could remain indifferent to this creation of white polar fox — it is feminine and charming.

A young woman will always look elegant in a sports coat of grey Persian lamb.



Contrasting textures are a favourite ploy — here the combination of smooth and fluffy furs. The coat is made of black Persian lamb, sleeves of alternating strips of Persian lamb and silver fox. The stole is also of fox.



The fur coats of silver mink (left) and brown (right), successfully utilize traditional lines and fashionable horizontal strips.

"And in Conclusion..."

from the youth magazine MOLODAYA GVARDIYA

"Will you give me six days more?" Honoré de Balzac, one of history's hardest-working authors, asked his doctor. "Six days is not so much... I shall have enough time for a cursory glance over my 50 volumes... I shall destroy poor pages and add vigour to good ones! Human will works wonders! In six days I can give immortal life to the world I have created."

As he concluded his plea, the author of *The Human Comedy* breathed his last.

* * *

The author of *The History of Civilisation*, Henry Thomas Buckle, died in Damascus. Gathering his waning strength, he exclaimed: "The book! My book! I shall never finish my book!"

* * *

Dying, Alexander Pushkin clasped the hand of Vladimir Dal, a close friend, and said:

"Now, lift me up and let us climb, higher and higher, come on!"

Coming to himself, he said to Dal:

"I was dreaming that you and I were climbing up those books and shelves, higher and higher, and I felt dizzy."

A little later, with his eyes still closed, he groped for Dal's hand again:

"Let us go and please, go together!"

Suddenly he opened his eyes, his face brightened and he said in a clear voice:

"My life has ended! It is hard to breathe. Something is pressing on my chest."

Those were the last words of the great poet.

* * *

Heinrich Heine was mortally ill but kept working. Four days before his death he worked on his memoirs for hours at a stretch. The poet said he needed only four more days to finish his work. He almost succeeded. On February 26, 1856 Heine demanded: "Paper and pencil!" But the pencil fell from his grasp.

* * *

Napoleon's last words were: "The column of troops..." The phrase remained unfinished.

Konstantin Ivanenkov at work in his studio.

by Pavel SAZHIN

The Warmth of Wood

These pictures strike the viewer by their unusual colouring. It is as if the artist has deliberately sacrificed all bright tints for streaming browns, honeys, ambers and pale yellows. But a close look reveals that these works are neither water-colour nor tempera. They are a kind of marquetry, "painted" of wood — thousands of varicoloured pieces.

Their creator, Konstantin Ivanenkov, has been "wood-painting" for 20 years. He developed this passion in childhood, when he took an intense liking for the fragrant chips and the fresh, butter-yellow sections of wood. One of his close relatives, a cabinet-maker, initiated the boy

"Forest" — incrustation on wood.

into many secrets of his craft. Then the youth went through years of training and subsequently mastered the techniques of "wood-painting".

The artist's instruments are some 50 surgical scalpels. Each has its own stropping angle and the choice depends on the fragility of the wood.

First, the artist makes a water-colour sketch which, bit by bit, he translates into wood. Ivanenkov

"Landscape".

"Nightingales".

uses over 60 varieties of wood, each having about sixty shades. Combinations of similar and clashing pieces, such as mahogany and walnut, give the picture its inimitable colouring. Besides, wood itself has a unique warmth which imparts an unusual quality to the final production.

Ivanenkov does not try to imitate painting. Nor does he strive to achieve the effect of pure decorativeness. The artist has found a style all his own, peculiar to wood, with all the possibilities and advantages it offers.

The Kirghiz Soviet Socialist Republic

from the SOVIET PRESS

In the Ala-Tau, midst peaks clad in snow,
The Kirghiz have lived for centuries past
In uplands and valleys where swift rivers flow,
Grazing their herds in meadows vast.

Mountain peaks thrust into the sky,
Against the blue shine dazzling white.
In Tien-Shan's depths gold sinews lie,
By rocks imprisoned from the light.

'Neath the mountains endless pastures roll,
And spread with a shaggy, sparkling mane
The summits tower o'er vale and knoll.
Lift up your eyes to heaven's bowl —
The beauty of our land extol.

Kirghizia is one of the four Central Asian republics of the USSR.

Batina Kydykova and Anora Orozbekova are students at the Frunze Teachers' Training College. It is an asset that the future teachers can play national instruments.

This is how Kirghizia's bards sing the praises of their country.

The Kirghiz Soviet Socialist Republic is a country of high mountains, dazzling snow-covered peaks, a land of wide valleys, hills and plateaus, of rolling pastures and deep canyons, through which foaming rivers run. Almost the whole of the western part of the mighty mountain system of the Tien-Shan (the highest point in Kirghizia is Peak Pobedi, 24,400 ft) and part of the Pamirs come within this Central Asian Republic.

Almost everywhere Kirghizia's frontiers follow natural borders — rivers and the crests of high mountains. Kirghizia's neighbours are the Tajik Republic to the south, the Uzbek Republic to the south-west, the Kazakh Republic to the north-east and the Chinese People's Republic to the south-east.

The memory of Mikhail Frunze is venerated in his native land. He was a leading revolutionary and military commander who fought for Soviet power in Central Asia.

Kirghizia covers an area of about 76,000 sq. miles. If Denmark, Holland and Belgium were all set down within its territory they would occupy a little over one half. Slightly less than half of the republic is situated at a height of more than 9,000 ft above sea level. In the mountains numerous swift rivers take their source. Not one of them is navigable as it passes through Kirghizia, but all the same they are tremendously important — they provide water for the crops and for the generation of electricity.

All around Kirghizia there are deserts, and the sea is thousands of miles away. It is therefore hot and dry. In the valleys, of course, the winter is milder than in the Tien-Shan, and in the mountains the higher one goes the colder it gets.

In the valleys of Kirghizia there are abundant gardens and vineyards, cotton plantations and fields of sugar-beet, while in the pastures flocks of splendid fine-fleece sheep and herds of thoroughbred horses graze.

Alpine meadows, mountain steppes, forests of the wonderful Tien-Shan firs and the country's biggest walnut tree groves, lakes of fabulous beauty and a tremendous variety of fauna (bear, wild boar, lynx, and snow leopards — in all 73 varieties of mammals) — this is Kirghizia.

A Little History

> *"Where I light my fire, there is my home, where I tether my horse — there is my pasture."*
>
> Kirghiz proverb

The ancestors of the present-day Kirghiz people were engaged in nomadic cattle-breeding back in the second millennium B.C. The Tien-Shan lands where they lived

The model of the atom — a symhol of modern science — stands at the entrance to the Kirghiz Academy of Sciences.

(some Kirghiz tribes lived in the northern reaches of the Yenisei) lay on a well-known trading route between East and West. Periods of prosperity for the Kirghiz tribes alternated with times of devastating raids by belligerent neighbours and internecine strife; at such times trading came to a standstill and people lived in poverty.

From north and west, Islam came to the nomads and from the south Buddhist religion and culture. To this day there still remain in the Chu Valley some fine architectural monuments of the eleventh century — three mausoleums with verses from the Koran carved on the walls and the Buran minaret, which reaches a height of 70 feet.

On the ancient trade route, at

Future livestock herders study in special schools. The student Dosmatov is shown at a hiology lesson.

The student hody of the University of Kirghizia numhers 25,000. Each year a great number of new specialists start working for the repuhlic's economy.

The Naryn hydro-electric power station is one of the first in this arid region.

a height of more than 9,000 feet above sea level there still stands the biggest stone structure of early times in Central Asia — the Tash-Rabat caravansarai. It is not at all easy to get to but holidaymakers and mountain climbers from all parts of the Soviet Union make it a must to climb to see Tash-Rabat. Built of slate of various hues — black, red, blue and brown — it strikes even the person who has travelled much and seen much with its beauty.

In the thirteenth century Central Asia was over-run by Tartar-Mongol tribes. The ancient culture declined and the towns fell into decay. For seven centuries the alien tribes dominated Kirghiz lands.

"When the enemy approaches the borders of your land, is he a *djigit** who grudges his life?" — the Kirghiz say. They did not grudge their lives. Nevertheless, the ring around them tightened. At the beginning of the nineteenth century the Kokand Khanate was established in the Ferghana Valley, covering the entire territory of the Kirghiz, who were in danger of complete enslavement. They appealed to Russia for help and in 1870 north and central Kirghizia voluntarily acceded to Russia, to be followed by south Kirghizia in 1875.

Before the Great October Socialist Revolution, Kirghizia was often referred to as a backward province of Russia. The Czarist government viewed it only as a mere source of raw material.

The Revolution gave the Kirghizians an independent government, land, political and economic rights, the same as all the other people that lived on the territory of Russia. This marked the beginning of Kirghizia's statehood.

In 1924 the Kirghiz Autonomous Region was formed within the Russian Soviet Federative Socialist Republic (RSFSR). In 1926 it was changed to the Kirghiz Autonomous Soviet Socialist Republic. And in December, 1936, the sovereign Kirghiz Soviet Socialist Republic was formed. That was done in accordance with the new Constitution of the USSR. The republic has its supreme legislative organ, the Supreme Soviet (parliament), and its executive body, the Council of Ministers. It also has the right to self-determination up to and including secession.

The population of the Kirghiz Soviet Socialist Republic is almost three million. Its capital is Frunze. Forty per cent of the republic's population live in its 66 cities and towns. The average population density here is 14 persons per sq. km. However, the population is distributed very unevenly, due

* *djigit* — a brave and daring horseman

to varied natural conditions. The high mountain areas are almost completely uninhabited, while the population density in the fertile Chu Valley and in the Ferghana Valley rises to 50 persons per sq. km.

Treasure Opened Up to the People

Kirghizia is rich in natural resources. The ubiquitous geologists have found more than 2,000 deposits. It has the USSR's richest

Here are a number of figures taken from the last population census and also the Statistical Year Book: "The Economy of the USSR in 1968".

Birth rate in 1940 in the Republic per thousand of population	33
Death rate	16.3
Natural population growth	16.0
Birth rate in 1968	30.8
Death rate in 1968	7.1
Natural population growth	23.7

Taking 1959 as 100, the population at January 1, 1970 was 142. Altogether there are about 3 million people living in Kirghizia. Of these the urban population accounts for 37 per cent and the rural population 63 per cent.

Growth of industrial output in the period 1960-63 (in percentages of 1960):

1960 — 100 %
1965 — 167 %
1966 — 191 %
1967 — 224 %
1968 — 249 %

In Kirghizia industry is an important branch of the economy, accounting for 55 per cent of the total social product.

Total agricultural output (for all types of husbandry, in million roubles, in comparative prices):

1965 — 741
1968 — 858

The Republic has 249 collective farms and 93 state farms. Freight turnover by road transport (in million ton-km):

1940 — 78
1968 — 2,374

reserves of antimony and mercury, the antimony being of such purity that it is considered standard on the international market. In the south there are the biggest coal deposits in Central Asia, there are also gold, tin, polymetallic and iron ores, and oil and gas.

The production of building materials is highly developed in Kirghizia—tremendous deposits of clay, gravel, gypsum, granite and marble are lying literally all over

Number of specialists with higher and special secondary education working in the economy (in thousands):

1941 — 11
1970 — 134

Number of doctors (in thousands):

1940 — 0.6
1968 — 5.7

Number of doctors (per 10,000 of population):

1940 — 3.8
1968 — 19.5

Foreign Trade

Kirghiz antimony is bought by 44 countries. In addition the Republic exports:

to India — machines, lathes, and precision instruments; to Britain, France, Federal German Republic, Poland, Hungary, Finland, German Democratic Republic, Korean People's Democratic Republic and Czechoslovakia — raw cotton;

30 countries buy from the Republic turning lathes (including Britain, Austria and the Federal German Republic).

Between 1959 and 1968 the output of machines and equipment for export increased 25 times.

Kirghizia imports:

from Czechoslovakia — equipment for cement, meat and dairy and canning factories;

from the German Democratic Republic — apparatus for sugar industry and printing machinery;

from Hungary — equipment for an electric light bulb factory;

from Poland — machines for the initial processing of wool;

from Italy — machines for textile printing.

the place.

The earth here is extremely rich in all kinds of minerals, not only those needed for industrial development. The presence of medicinal mineral springs is of benefit to the health of the people —dozens of sanatoriums have been built to make use of them.

Before the Revolution, Kirghizia was poorly developed economically, the Czarist administration, and later the Civil War and foreign intervention left it on the verge of disaster. This necessitated urgent measures to relieve famine and put an end to centuries of backwardness.

The Soviet government allocated vast sums of money to build railways and higways, factories and mines in Kirghizia. Help also came from other republics. Industrial plant, machine tools and experts arrived in Kirghizia from the Russian Federation, Byelorussia and the Ukraine. Much was done to train local technical and engineering personnel. Young Kirghizians went to Moscow, Leningrad, Kiev and other cities to receive an education.

Thus in a short period of time, thanks to the national policy of the Communist Party, thanks to the fraternal aid of the Russian and other peoples of the Soviet Union, Kirghizia developed into a socialist republic with an advanced industrial and agricultural economy.

In fifty years the Soviet authorities have built about 5,000 industrial enterprises in Kirghizia,

The Frunze Motor Works produces tip-up lorries, watering, milk and oil trucks. It is one of the biggest in the country.

700 of them big ones, have set up 100 industries (ore mining, oil extraction, coal mining, gas extraction and engineering). A country which before the revolution imported everything, even matches and salt, now exports its goods to 57 countries.

Kirghizia is a major supplier of antimony and mercury, oil and oil products, it produces 45 types of lathes and other machines, and accounts for 40 per cent of the coal mined in Central Asia. In Frunze, the capital of Kirghizia, there are an automobile assembly works, producing lorries, and one of the country's biggest meat-packing plants. In 1969 the biggest electric bulb works in the country was built in the town of Mailis.

Quite recently a new gas pipeline was completed here, passing through Kazakhstan and Uzbekistan to Frunze. Incidentally, this is by no means the first inter-republican construction scheme in Central Asia. Other ventures built jointly include canals and reservoirs, electric transmission lines and roads which serve several republics.

We do not propose to weary the reader with figures showing Kirghizia's industrial development: for anyone interested they are given separately. Instead we will say a few words about one enterprise—the worsted cloth mills. In 1969 the workers and specialists at the mills came first in the All-Union contests between enterprises under the aegis of the Ministry of Light Industry: in three years they succeeded in raising profits sixfold, and earnings 11 per cent.

People whose fathers or grandfathers were nomads work on machine tools making complex instruments and equipment, build homes and factories. Let one of them speak for himself.

"I have been a building worker for six years now," says Nurdin Rayimkulov, who works for the building trust in Frunze. "I am very pleased that I chose this trade. My grandfather was a nomad and my father a farm labourer, but not long ago I finished technical school and was appointed a team leader. I am thinking of going into an institute to continue my studies . . ."

The young people study and teach others. Anatoli Gefele, milling machine operator, won a prize in an All-Union contest for his trade. This nineteen-year-old champion has organised a school at which he teaches his mates his methods of working. Sadykova, senior shepherd, also teaches her friends—to look after the sheep, although she herself was studying not long ago under Bakyt Musuralieva, Hero of Socialist Labour. Former shepherd Tolosun Ismailov is now in charge of an entire state farm section and Koichuman Makeshev, another former shepherd, has become director of the experimental selection station for South Kirghizia. The workers building the Toktogul hydroelectric scheme

are studying . . . mountaineering and rock-climbing. Yes, mountaineering and rock-climbing, for this scheme is being constructed in a narrow gorge at a great height and much of the work is being done on the sheer rock face. The young workers call themselves mountaineer-mechanics or mountaineer-assembly workers.

Today it is not only mountain crests and gorges, lakes and rivers, but electricity pylons, factory chimneys and the jibs of building cranes that typify the Kirghizian landscape.

Seagulls Over the Mountains

"Water is the life-blood which creates life where life did not exist."

Academician Alexander Karpinsky

Seagulls fly over the Tien-Shan and the Alai, over immense pastures and plateaus. They fly to the north and on their way lies the Orto-Tokoi reservoir. What colours this man-made sea has introduced into the mountain landscape! There are seagulls in the crevices, and gardens, vineyards and fields of tulips grow on cliffs which once seemed to have become exhausted by the heat.

The River Chu formerly went to waste. Autumn and winter it carried vast quantities of water from the mountain glaciers to the barren desert and in spring and summer it practically dried up. A new big reservoir has made it possible to control the flow and the result is beneficial for both man and land. Now the Chu takes water to 250,000 acres of land in Kirghizia and neighbouring Kazakhstan. This vast accumulation of water is held back by a 200 ft high dam consisting of several million cubic yards of compressed earth, and its foundations are 1,190 ft thick. This is a rare structure in such high mountains.

The great Chu Canal (94 miles), the great Talas Canal and the great reservoirs have all made it possible to bring a total of 2,250,000 acres of land in Kirghizia under irrigation. The total length of the irrigation network built in Soviet times is now 18,000 miles.

In 1940 the republic's power stations generated 51,600,000 kilowatt-hours of electricity. Now the figure is not millions but thousands of millions. In one year the power stations of the republic generated fifty per cent more electricity than did those of all Russia before the revolution. Kirghizia not only provides her own electricity for herself but supplies her neighbouring republics.

Riches of Peaks and Valleys

Crop-growing has always taken second place in the republic. The Kirghiz go high in the mountains with their flocks and herds, choosing temporary camping sites in the pastures. Sheep breeding,

stud farming and meat and dairy cattle breeding are leading branches of agriculture today. Countless flocks of sheep graze on the vast pastures, 80 per cent of all the farmlands. In this little republic occupying less than one per cent of all the territory of the Soviet Union there are almost ten million sheep and goats, almost all of the sheep valuable fine-fleece and semi fine-fleece varieties. Kirghizia, of course, occupies one of the first places in the country for wool production.

In this republic shepherds are people to be respected. Twenty representatives of the profession are deputies to the Supreme Soviet of Kirghizia, while eight are deputies to the USSR Supreme Soviet.

Nowadays shepherds are trained in special schools. The young people study the care of livestock, farm management and agronomy. In summer when the passes are free for a few weeks of ice and snow, the shepherds drive the cattle to mountain pastures, where there is succulent green grass. At the distant pastures they still need the old-fashioned yurts—felt tents—but today they also have portable stoves, transistor radios and radio transmitters, and there are boarding schools for the shepherds' children. In addition there are planes to help them: the flocks are often "scattered" on to a new pasture by plane. In winter the cattle are more and more often being kept indoors. In Kirghizia 625 million acres are still used to produce natural hay, and a third of all the cultivated area is used for fodder crops. To the south of the republic, in Ferghana Valley*, there is a big depression between the mountains where cotton and sugar-beet are grown. The beet growers get finer yields than anywhere else in the Soviet Union (14 tons per acre), and Kirghiz tobacco, oil-bearing crops and medicinal raw materials are exported to many countries.

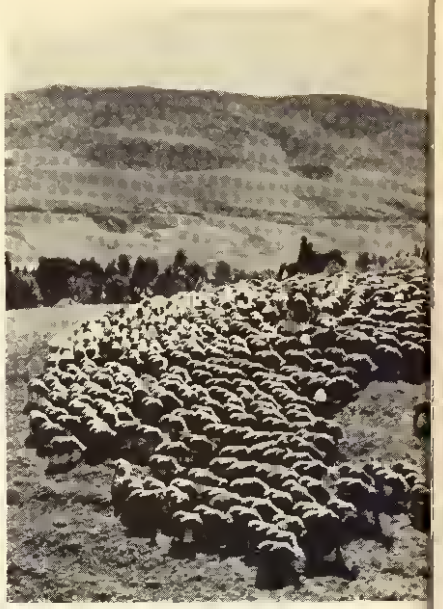
As regards grain crops, Kirghizia occupies second place in Central Asia for sowing and harvesting of grain, and for yields it takes first place. Maize, barley, rice and oats are also grown here.

In Kirghizia they joke that for each inhabitant there is a mountain peak. That is why among the construction workers of the Toktogul hydro-electric power station there are experienced mountain climbers.

Road Into the Clouds

Kirghiz roads... They rise straight up into the sky, and it is not surprising that songs and verses are composed about drivers in these parts. Altogether there are 13,000 miles of highways running through gorges and passes

* Stretching almost 200 miles from west to east and 60 miles from north to south, Ferghana Valley is divided between the Central Asian republics—Uzbekistan, Kirghizia and Tajikistan. In it live 28 per cent of the inhabitants of Central Asia



They are quite accustomed to travelling to summer pastures by plane.

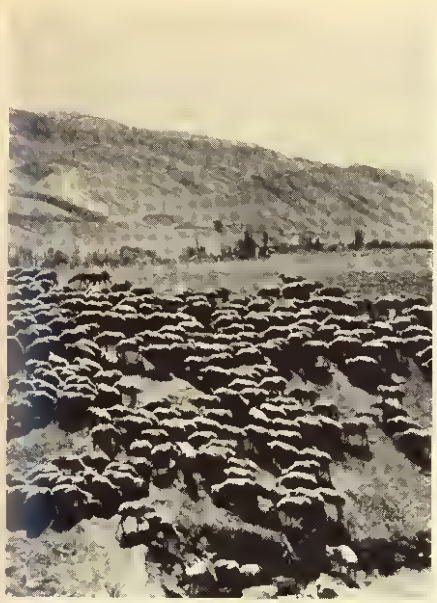
in this area. Motor vehicles and aircraft are the main means of transportation.

Thirteen thousand... this is quite an impressive figure. Nevertheless, until quite recently, if you wanted to get from the north to the south you had to make a 750-mile detour through three republics—Kazakhstan, Uzbekistan and Tajikistan: there was no road across the Kirghiz and Ferghana ridges.

In 1965 building workers of the republic, with the aid of the metro builders of Moscow and Leningrad constructed the Great Kirghiz Highway—a 375-mile road from Frunze to Osh. It runs at a height of nearly 10,000 ft, with avalanche barriers to protect it from the winds of the elements. A one-and-a-half mile long tunnel has been dug through the icy pass of Tuya-Ashu. The journey to the south now takes 14 hours less.

Bus routes connect Frunze with all the district centres in the republic. Planes and helicopters are often seen in the most remote villages: it quite often happens that villages only a dozen or so miles away from each other are divided by inaccessible ridges.

The Lugovaya-Frunze-Rybachye railway line links Kirghizia via Kazakhstan and Uzbekistan with the railway system of the rest of the country.



The old shepherd, Mamadur Bakhtemirov, knows the mountains like his own home.

From ABC to Academy

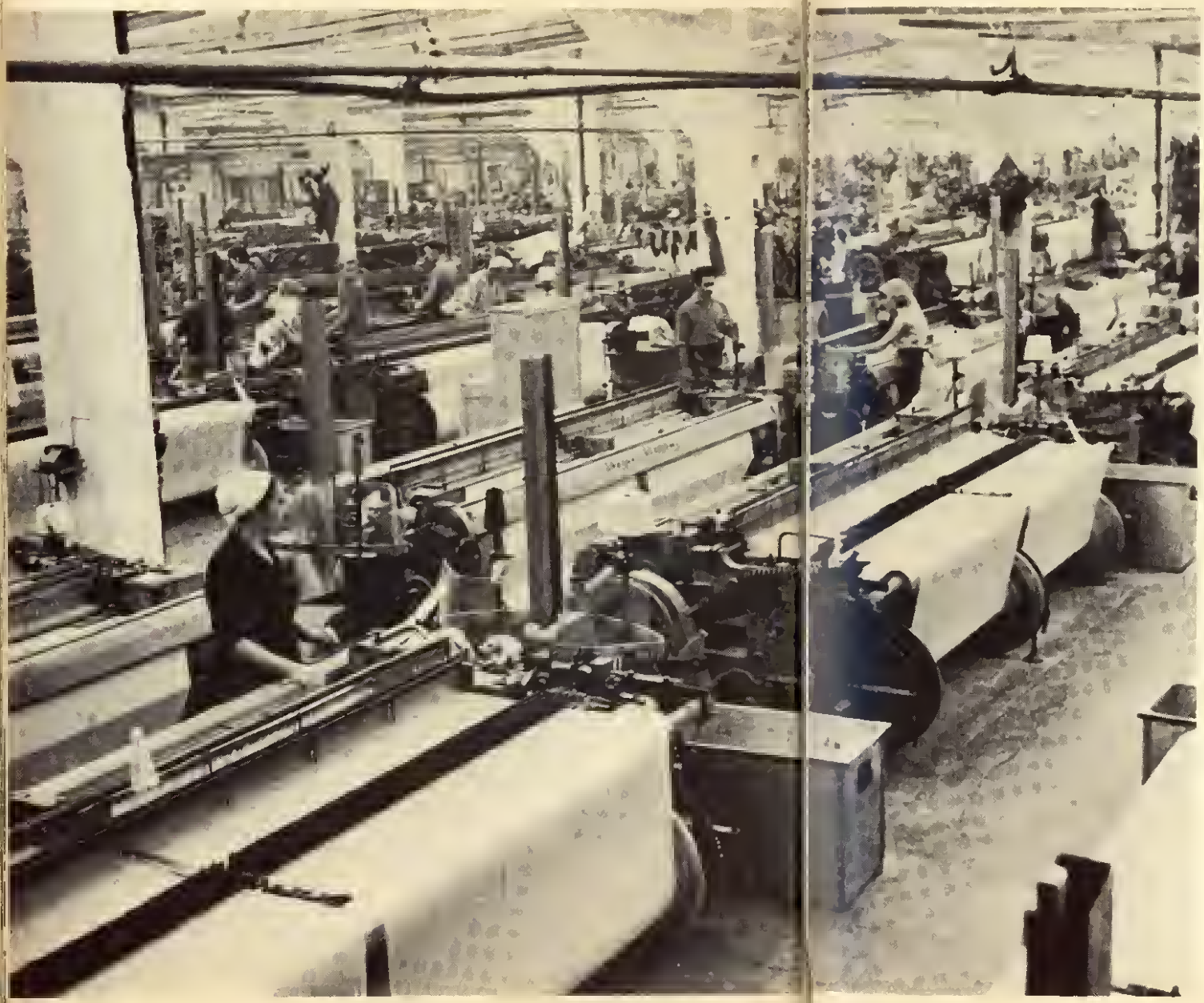
"It would take 4,600 years to wipe out illiteracy in Central Asia and Kazakhstan."

(from the magazine *Educational Herald*, 1912)

The ancient writing of the Kirghiz people (6-9th centuries), which is now to be seen only in some rock drawings, was later lost. In 1924 the language was given a new written form: in November of that year the first issue of the Kirghiz newspaper *Free Mountains* was published. In 1926 the first national theatrical studio was opened in the republic, in 1934 a congress of Kirghiz writers was held, and in 1936 an art studio was set up in the capital. By that time the Kirghiz were already reading, in their native language, the works of their own writers, and such great men as Shakespeare, Pushkin, Dante and Lermontov.

In Kirghizia today 89 newspapers and 47 magazines are published. There are five publishing houses bringing out 1,000 book titles per year with a total imprint of five million.

One in every three persons in the republic is studying. Each year 5,000 specialists graduate from higher school and 8,000 young-



The worsted mills in Frunze is one of the republic's leading enterprises.

sters leave secondary school. There are about 90,000 students at nine institutes and 36 technical special secondary schools, and there are twice as many students per ten thousand of population as in the German Federal Republic or France, or 50 per cent more than in the USA.

The republican Academy of Sciences (founded in 1954) has fifty research institutes, in which 5,000 scientific associates work. These include institutes of physics and mathematics, geology and organic chemistry, automation, biology, history, and language and literature.

What problems are Kirghiz scientists tackling? Here are a few of them:

biologists are working on the problem of improving meadows and pastures;

zoologists, along with practical livestock tenders, have bred the new highly productive Alau breed of cattle and the Kirghiz fine-fleece variety of sheep;

medical men are studying the effects of high mountains on human organism. In the mountains such serious diseases as hypertension and asthma are being treated with success;

the Institute of Economics had drawn up a plan for the development and distribution of the productive forces of the Kirghiz Republic between 1971 and 1980.

High in the Tien-Shan mountains

Mountain roads are kept clear of snow and motor transport can travel freely.

is the only physical and geographical station in the USSR, which carries out complex studies of natural conditions in the mountains. It was set up 25 years ago and is carrying out work according to an international programme laid down in 1959 by scientists who came here from all over the country. Glaciologists are studying glaciers and lakes—Kirghizia would be a desert if there were no ice or snow to give the valleys water.

Publications of the Kirghiz Academy of Sciences are sent out to ninety addresses in various parts of the world, and representatives of the republic take part in major international conferences and symposiums.

"The Kirghiz do not need medical care. The nomadic way of life is the best cure for all illnesses," declared the Governor-General of the Steppe Region, Baron von Taube, as he dismissed Vassili Frunze, a medical assistant at the Pishpek Hospital, for putting a Kirghiz into hospital. The time would come when the town of Pishpek would he renamed Frunze in honour of Mikhail, the medical assistant's son, who proved to be an outstandig revolutionary, and fighter for Soviet power in Central Asia, and the little adobe cottage in which the Frunze family lived would become a museum. Yet for the time heing

Riding and national games on horseback are a favourite pastime.

there were nine hospitals with 100 beds and fifteen doctors for the whole of Kirghizia. Smallpox, plague and cholera raged . . .

Now the republic has 284 hospitals with 28,500 beds, 220 out-patients' clinics including maternity and child welfare centres, 766 first-aid and midwifery stations, 224 maternity homes, 56 sanitary-epidemiology stations, 174 chemist shops and 13 sanatoriums; there are more than 5,000 doctors and 20,000 auxiliary medical personnel.

The first festival of Kirghiz literature and art was held in Moscow in 1939. For many this was a revelation. Six theatres from Kirghizia gave performances of the strikingly musical and poetic national drama and opera, and folk instrument orchestras won praise from the discerning audience of the capital.

Now works by Chingiz Aitmatov, a Kirghiz writer who holds the Lenin Prize, have been translated into 44 languages. The film *Sky of Our Childhood* (Kirghiz Film Studio) received the Grand Prix at a film festival in Prenta (Italy) in 1969, while *A Shot in Karash Pass* received the second prize at the All-Union Film Festival in 1970. The Karamolo State Folk Instrument Orchestra, the singer Artyk Myrzavayev, the actor Ashirali Botaliyev, and the ballerina Bibisara Beishenaliyeva

have won fame throughout the country. Paintings by Kirghiz artists are exhibited in India, Afghanistan, Italy and Ceylon; examples of Kirghiz national embroidery, trimming and embossed and appliqué leatherwork, articles of felt, and chased and engraved work were on view at EXPO-70.

The ancient national games and sports are very close to art: horse-racing, shooting at a target while riding a horse at the gallop, duels between horseback riders using lances, and "pursuing the bride". Kirghiz athletes give good showings at national and international competitions.

Invitation to Travel

To end this cursory glance at Kirghizia we should like to invite readers to make a short journey to the country. Lake Issyk-Kul, Frunze, the republican capital, and the town of Osh-this is the itinerary.

Long, long ago a golden-haired beauty, Altyn-Chach, fell in love with a young man named Japar. An elderly bey who had heard of the girl's beauty, decided to have her for his wife and he had Japar tied up and thrown into an abyss. Then Altyn-Chach tore her heart from her breast and flung it into a foaming mountain stream. The mountains took to themselves the heart of the girl and in that place created the warm lake Issyk-Kul.

This was how, according to legend, one of the most beautiful high mountain lakes in the world came into being. "Warm lake"—this is the meaning of the Kirghiz name Issyk-Kul. It once had a different name. Tuz-Kul—"Salt Lake". The water contains beneficial minerals—salts of sodium, potassium, calcium, magnesium, silicon, chlorine, iron, and rodon. The Mongolians call it Timur-Tu-Nor, which means "Iron-containing". On the shores of the lake there are deposits of iron sand. And, finally, the lake was called Dzhit-Kul—"Fragrant Lake". It has always been surrounded by flowering orchards and sweet smelling woods.

Amongst the high mountain lakes of the world, Issyk-Kul is second in size (2,400 sq. miles) only to Lake Titicaca (South America).

It really is a "warm" lake—it does not freeze in winter. It is also a very beautiful lake.

"The dark green surface of Issyk-Kul with its sapphire hue, may without fear compete with the deep blue surface of Lake Geneva," the outstanding geographer Pyotr Semyonov-Tien-shansky wrote in 1857. "The slopes of the Tien-Shan mountains, thickly covered with fir trees, drop steeply to the 'Warm Lake', imparting to it with its own reflection the purest, densest blue-green colour of the Trans-Baikal beryl."

The lake really is an unusual colour, and it is so transparent that from a boat one can see through the great mass of intervening water the relief of the bottom. In July and August the 70 streams and rivers running into Issyk-Kul bring tempestuous water from melted glaciers. Then the lake overflows over a stone barrier to form a 900 ft waterfall.

In winter there are quite often storms on the lake—this is because winds coming from opposite ends of the lake clash head on. In spring and autumn the lake is calm and quiet. Nevertheless its colour changes constantly. A slight breeze, and it seems to become lit up from within, glowing with all kinds of hues—deep blue and pink, azure and green. Then suddenly, as if someone has pressed a switch, it is all extinguished.

The hot mineral springs around Issyk-Kul—even when there are frosts, the violets bloom around them—were known in ancient times. Legend has it that one of them helped the savage warrior Timur to cure his lameness. For dozens of miles, especially on the south shore, there stretch wonderful beaches of red, golden and ruddy-brown sand and gravel. As for fish, there is a fantastic abundance of them. This is the only place where, for example, osman and marinka breed, while trout brought here from Lake Sevan in Armenia have become very well acclimatised. In Sevan the biggest of them weighs 10 lbs, while here they go up to 31 lb.

Among the birds that winter on the lake are black swans, geese and ducks, while flamingoes are also to be seen. Add to this the crystal-clear mountain air and coolness on scorching days, woods full of mushrooms and berries, waterfalls and edelweiss, and it will be clear why people come here from all over the country to build up their healtht and to enjoy themselves.

A hundred pairs of poplars, their branches intertwined, form a wide avenue leading to Frunze, the capital of Kirghizia.

It stands over 2,100 ft above sea level, in the foothills of the Ala-Tau, at the very place where mountains and steppe meet. From the mountains blow cool winds, glittering snow-capped peaks tower above a thick green carpet, woven from poplars and elms, oaks, limes, acacia and karagach. Frunze has the largest botanical gardens in Central Asia and to each of the city's residents there are about 100 "green" square yards. Green and blue (over Frunze the sky is clear on 300 days in the year) prevail in Frunze's colour scheme. The great Chu Canal and the lake and a whole network of *aryks* (irrigation ditches), mitigate the merciless Central Asian heat.

Continued on p. 115

Men on the Cultural Scene

RISING KIRGHIZ FILM DIRECTOR

by Leonid GUREVICH
from the magazine
SOVIETSKY EKRAN
(Soviet Screen)

Young Kirghizian film director Tolomush Okeyev won the Gold Rhododendron, grand prix of an Italian film festival, last year, with his first feature film, THE SKY OF OUR CHILDHOOD. His country, which did not have a written language before the Socialist Revolution, is new to the art of film making, but Okeyev's promising start shows that the republic, after making a timid and imitative debut in this field, has produced screen workers who have learned well from their Russian mentors and are now creating their own distinctive works.

If you wish to return to your native land, bury a talisman in the earth — thus the Manaschi taught in the old days.

His horse is all to a berdsman.

A horseman does not cry — so his father said.

Mountain pastures. Much of the film action takes place here.

Not a talisman, but a film-camera, helped director Tolomush Okeyev return to his native land and resurrect on the screen remembered episodes from childhood.

I first met Tolomush Okeyev almost eight years ago when he was about 22 — a budding sound engineer who was one of a team returning to Frunze covered in dust and parched from the sun, after making the film *Scorching Heat* in the steppe. They were exhausted but pleased with what they had done — a year later the film, directed by Larissa Shepitko, won first prize at a Frankfurt-on-Main festival and the Grand Prix at Karlovy Vary. Okeyev made a considerable contribution to its success.

Okeyev was born and raised in

a Kirghiz mountain village, surrounded by pastures where the herds of horses ran, where the riders vied to show their skill, where the stars could be seen through the tops of roofless felt tents, and the wailing of the wind competed with the drawling songs of the *manaschi*, the bards of Kirghizia.

When he went to study at the Leningrad Institute for Film Engineers, Okeyev entered filmland as if he were entering the realm of logic and figures, and not the world of vague artistic intuition. There must have been something of benefit in this for all his works bear the hallmark of an engineer's precision. He calculates his variants like an analyst, and it is only after this that he clothes the carefully thought-out framework with the sap and blood of real life.

When I saw the works he had entered when seeking admission to a higher school for film directors I was not at all surprised by his aim — he would certainly have found some other way of achieving it had there been no such school. He gave his simple credo: "I have always admired the *manaschi*, who, in reciting epic poems, can capture people's minds and emotions. It is important to do whatever is in one's power to bring some happiness to people — then happiness will be returned to the giver."

He successfully completed his two-year course along with fellow-students who were already college graduates. The chief thing in this period of study was for the students to find their own identities. To my mind, Okeyev did this with his very first picture, a ten-minute film called *These Are Horses*.

So much has been put into those ten minutes that I still feel that this first documentary is his best. It shows a foal born in a mountain pasture, breathing the air of freedom as it runs on trembling legs alongside its mother. Then there is a frantic chase, the swish of a lasso, it feels the strange noose on its neck, it falls, jumps, falls again, then feels the weight of a rider on its back, the pain of a bit in its mouth, and a feeling of rage and affront. Then the young horse hears the noise of the racecourse, a bell ringing, a tense race and shouts of triumph. Then the most terrible stage: old age, death, tears in the eyes of horses standing nearby. But the epilogue brings back the image of the proud, wonderful, indomitable steeds.

It is a screen poem, full of bitter passion, and the meaning of its images, indirect as they were, are only too obvious — a film about life in the broad sense of the word, about its beginning and its end, about work, sadness and joy.

In it Okeyev displays the ability essential to all film directors — to speak with sincerity from the screen.

In his maiden feature film, *The Sky of Our Childhood*, one felt

gladdened by his obviously good work with the actors, especially as it was his debut. A film displaying Okeyev's deep knowledge of his profession, its authenticity has been remarked upon by all the critics — and it has been the subject of much comment. Megaphone in hand, Tolomush on location demanded genuine ardour from the riders and gave them the lead by now and then jumping onto horseback himself. To him this kind of thing is an elementary requirement of film realism.

Elementary requirements, however, are too small for him. To use his own words, he finds it necessary to "sing" — the important thing is not so much credibility but the poetry growing from credibility. For instance, there is the scene, where in heavy rain the old horse driver Barkai and his son are milking the mares. The wind is tearing at their coats, water is streaming from their collars but on their faces can be seen a smile of mutual understanding, the closeness which comes from carrying out such an ordinary job of work. And the lashing "white" rain, as the Kirghiz call it, is also theirs, their Kirghizia, part and parcel of their lives.

This is perhaps the best and most ethnographically precise episode, giving an almost physical awareness of the close relationship between the man who made the film and his native land and its people. There is some very personal material in this film. Okeyev, the son of a peasant, a boy from a remote Kirghiz village, was looking for something that for him was most essential in understanding the wellsprings of a nation. A film-maker of the mid-twentieth century, Okeyev was looking for something vital to Man. His balanced position between Kirghiz folklore and the achievements of modern culture enabled him to turn the picture into a passionate credo, and its international success gives further proof that in the hands of a talented director the truly national and international elements of a film run inextricably together.

Although some time has passed since that success, the sudden fame it brought, prizes, trips abroad, praise and so on have fortunately not gone to Okeyev's head, and he is certainly not resting on bis laurels. Since then he has made a short called *Bohom*, he has produced a stage play, he is working on scenarios, and recently he completed a new feature film, *Heritage* and a documentary, *Mountain Necklace*.

When I asked him whether feature films or documentaries gave him greater pleasure he laughed as he replied: "I get tired of both of them. It's necessary to change from one to the other occasionally."

This is his working principle within a single production. *Heritage*, a beautiful film, is basically a dialogue between a dying old man and his wife. On the threshold of death (one hears

his voice without seeing him) the old man looks back on his life — the thought of what will remain after he has gone constitutes the leitmotif of the work. The people who will live on will be left with the beauty of their land and its songs, which the *manaschi* have preserved for posterity. They will carry the torch handed on to them by previous generations, and like them, they will have their share of joys and sorrows. The spirit of the people will go on through the centuries.

This idea is conveyed through a series of poetic pictures of Okeyev's native land. The eyes of the dying man see wondrous landscapes of Kirghizia, in all their pristine beauty. The sad autumn flight of the swans is a swan song in itself, while a scene with children running through a field of poppies is the very essence of eternal youth. Every scene is organic to the film, made up as it is of well-selected sequences and bearing the mark of rare musicality. Undoubtedly Okeyev's skill has reached a new, bigher level.

The young director shows a sense of humour, and journalistic topicality. When I met him recently I found him unusually serious, and I warned him that it might affect his reputation as a man of infinite wit. His reply was that it was time he grew serious — he was planning to film a comedy.

Now 30, Okeyev is just beginning his career — but it is a most promising beginning.

COOKERY

Mutton COOKERY

SUSAMYR ROAST LAMB

For 4 portions:

- 1 1/2 lb lamb
- 4 oz fresh tomatoes
- 1 1/4 lb potatoes
- 3 oz carrots
- 1 1/2 oz sweet pepper
- 1 to 2 medium onions
- 1 1/2 oz tomato paste
- 1/2 oz garlic
- salt and black pepper to taste

Cut lamb in pieces (with bone), each piece weighing 1-1 1/2 oz. Place them in a saucepan and cover with cold water. Put on to boil. When it boils, skim and add salt. After an hour add to the saucepan peeled tomatoes, finely chopped sweet pepper, sliced potatoes, carrots and onions. Put in the oven to simmer for 20-30 minutes, after adding tomato paste. When serving, sprinkle each portion with chopped garlic and black pepper.

Dishes Kirghiz Style

The people of Kirghizia are particularly fond of meat and pastry dishes. These are usually made with lamb and are generously flavoured with garlic and pepper.

Today, we present some recipes from the chef of the Kirghiz restaurant Susamyr.

ET-KAMYR

For 4 portions:

- 1 3/4 lb lamb (fillet)
- 3/4 lb radish
- 1 1/2 oz sweet pepper
- 1/2 lb onion
- 1/2 oz garlic
- 1 1/2 oz fresh tomatoes
- 4-5 oz clarified butter
- 1 oz tomato paste
- 1 glass bone stock
- 3/4 lb flour
- 3 eggs
- 1/2 glass water
- salt to taste

Cut lamb into small pieces and fry in butter until golden brown.

Prepare vegetables. Cut sweet peppers into fine strips. Fry onions, cut into rings, until golden. Either chop radishes finely or grate on a coarse grater, pour on boiling water and leave to stand for 10-15 minutes. Pour off water. Peel tomatoes, chop garlic.

Now mix all vegetables. Add tomato paste to them and mix again. Sprinkle about one-third into the baking tin and sprinkle the rest onto the fried lamb. Mix meat and vegetables. Add salt.

Prepare glazing for the dough. For this mix the white of one egg carefully with a very small quantity of flour. The glazing must be quite liquid.

Now make dough. Sieve flour, empty it into a heap on a board, make a well in the middle. Pour in two eggs, add salt to taste, and, adding a little water, mix to a stiff paste. Roll out in a big round about one-fifth of an inch thick, glaze lightly and fry in butter on both sides until a thin yellow crust is formed.

Lay the mixture of meat and vegetables on the dough in an even layer and roll up. Cut the roll into slices of about two inches long and glaze the edges. Fry each

slice on the open sides in a little butter for 3-5 minutes. Then lay them in the baking tin with the vegetables and simmer for 10-15 minutes in a little stock.

ROAST LAMB KIRGHIZ STYLE

For 4 portions:

1 1/2 lb lamb
2 to 3 medium sized onions
4 oz radish
1 1/2 oz tomato paste
1/2 oz vinegar (3 per cent)
4 to 6 oz vegetable oil
3/4 lb wheat flour
5 eggs
1 1/2 Tbs milk
1/2 glass water
1/2 oz garlic
red and black pepper,
bay leaf and salt to taste

Cut meat into pieces of 1/2-1 oz. Chop radish finely or grate on coarse grater and leave in boiling water for 10-15 minutes. Cut onion into rings.

Place meat, onion, radish (after squeezing out water) and bay leaf in saucepan, add vegetable oil and vinegar. Now put in tomato paste, red pepper and salt. Simmer for 1 1/2-2 hours. While it is simmering another glass of stock or water may be added.

Prepare pasta. For this, sieve flour, turn out onto a board in a heap, make a well in the centre and pour in one egg. Gradually adding water, mix to a stiff dough. Roll out in a thin layer, sprinkle lightly with flour and cut into small diamond shapes. Boil pasta in salted water.

Finally, make omelettes. Beat 4 eggs in a basin. Add milk and beat again carefully. Divide into four equal portions. Pour each portion separately into a hot greased frying pan and fry over a hot flame. Do not forget to shake the frying pan slightly so that the omelette heats evenly. As soon as it begins to thicken take a palette-knife and turn the edges towards the middle from two sides. When it is cigar-shaped, turn it so that the join is underneath, and remove from heat after 1-2 minutes.

When serving first place boiled pasta in the plates, then pieces of meat and vegetables and pour on the gravy obtained during simmering. Then add an omelette to each plate, sprinkle each portion with finely chopped garlic and black pepper.

If desired this dish may be garnished with parsley or dill.

A WINTER'S DAY...
Continued from p. 19

meal, so let's go back along the track it made getting here during the day. While we are at it we had better do what the naturalists and hunters do — they don't walk along the track the animal has left, but alongside it, and for a very good reason. Unless you are experienced, you will notice nothing special, and the track will come to a sudden end in a clearing, just as if the hare had flown away or climbed a tree. This is its way of deceiving the inexperienced — the hare has doubled back on its tracks, something which is difficult to discern in loose snow. To find it, we will have to discover where the track becomes single again. Now we have hit on its little trick: under a bush behind a small fir you can see a shapeless hole made by all its feet as it launched on a prodigious spring of ten feet or so. There are the marks of another big spring and you can see the track leading away again.

A flock of tomtits descends on us as they usually do, suddenly and without warning, cheeping and whistling as they hop over the branches with a businesslike air, and making quick, jerky, little flights as they hop across the ground. They are always on the move looking for food and "talking" all the time — signalling to keep the flock together. If you stand still they will not notice you from a couple of yards away, because they are so short-sighted. Most flocks consist of willow tits, little brown birds in black caps constantly fluttering around. As it is winter, most of the larger tomtits have moved nearer human habitation where they can find more food. It is only in the deciduous and mixed forests that you will still find the most beautiful of all, the blue and green birds.

Now you can see a new bird — brownish and crested, and more jerky in its movements than the rest. Listen to its distinctive voice — a harsh trill. Someone must have moved — the bird has become motionless and is fixing at me with its little black eye. Its crest is bristling, as if it wants to scare me off, but I think it is afraid itself, as it is taking off in a hurry. The crested tit is easily identified.

Other birds usually join in such flocks of tomtits, including the bluish nut-hatch, the only one of our birds which can run up and down a tree head downwards, clinging to the bark with its sharp claws. Then there is the little brown tree-creeper which resembles a woodpecker, spiralling around the tree trunks. The tits are also joined by woodpeckers and the tiniest of our birds, the goldcrest, with its gleaming golden crown.

The short winter day is coming to its end, as the sun's rays gild the fir tops. Dusk is falling and it is growing noticeably colder. Let's call it a day.

Sypaichi*

by Chinghiz *AITMATOV*

The fame of Chinghiz Aitmatov has spread far beyond the borders of our country. He has been translated into 27 languages of the USSR and 17 foreign.

He was born and grew up in the Talas Valley of Kirghizia. In 1941, when the Soviet Union was attacked by nazi Germany, Chinghiz was 13 years old. He was forced by circumstances to leave school and go to work. The atmosphere of hard work which surrounded him from childhood, the everyday life of a collective farm, the lives and destinies of the rural people of Kirghizia, later found wide reflection in his work.

Aitmatov began his literary career while still a student at the Kirghiz Agricultural Institute. His first story was published in 1952. For his book, A TALE OF MOUNTAINS AND PLAINS, the 35-year-old writer was awarded a Lenin Prize in 1963. FAREWELL GYULSARI, written later, received a USSR State Prize.

It seems that not a single work of Aitmatov's has missed being reborn on stage, film or television screen.

We offer the readers of SPUTNIK an early story of Aitmatov's published here in a slightly abridged version.

* A sypai is a tripod made of tied logs and filled with stones, hay and brushwood. It is used to dam mountain streams. A sypaichi is a man who builds such weirs.

Once upon a time, in the middle of summer, goes an ancient legend of the Kirghiz who inhabit the Talas Valley, a *djigit** needed to quickly cross the River Talas. On the opposite side a beautiful girl awaited him and he was to carry her off that night. In the evening the djigit rode up to the river and found it unrecognizable — never had the water risen so high! There was not even a trace of the ford. In despair the djigit raced up and down the banks, trembling lest he lose his bride. At last, relying on the strength of his good stallion, he plunged into the river. No sooner had they entered the water than the horse was knocked off its feet and swept away. The animal was drowned but the man miraculously survived by hanging on to some bushes. When the djigit scrambled out of the water he was no longer himself, his teeth rattled in fear. All thoughts of his beautiful bride vanished.

* horseman

I

A few days later the poor man came to the river and could not believe his eyes: it was as though the other night had never been! The river was quite shallow. Not far away he found the carcass of his horse, thrown out on the bank. He removed the saddle, swung it onto his back and trudged off. Ahead he saw a feeble old man, serenely riding a donkey across at the very spot where he had almost perished.

"Eh you," the djigit cried out and shook his fist, "am I worse than you and your donkey?" He fell to the ground and began to weep bitter tears. Another had taken his bride.

The sypaichi, Beknazar, is fond of retelling this story.

"Our river, brother, is not to be trifled with," he counsels and smirks behind his whiskers. "One day the water is up to your knees, flows along and doesn't bother anyone. The next day it runs riot and sweeps away bridges. It's like it's alive — you've got to understand it . . ."

A never-ending struggle takes place in the gorge. The Talas, squeezed into its rocky bed, furiously demands freedom: with terrible strength it hurls itself at the feet of the cliffs, beats at their stony breast. But alas! The forbidding cliffs keep their silence, they are indifferent, immovable. In powerless wrath the foaming river splutters, falls back and crawls down, an infuriated snake. In its hollow, anxious rumbling a threat and a plea can be heard. Then, gathering fresh strength, the river hurls itself once more at the steep rocky walls of the canyon and once more retreats, breathing hard. And so without end.

Having torn itself out of the gorge, the Talas noticeably slows its pace. But here too, it is restless. The river runs into new obstacles, this time erected by man. On the right bank, across the flow,

stretch sypai: from here collective farms draw their water. The river rages and spills over the weir. Part is diverted into the main irrigation canal and the water then streams to the fields.

Each dawn, Beknazar comes here. From the gorge, the muted roar of the river rumbles and a moist breeze blows. From the water and wind, tbe skin on Beknazar's face is like a seaman's — rough, dry, and stretched taut across the skull. Small eyes with reddish veins in the whites stare sharply from under lowering brows.

After hobbling his horse, Beknazar heads for his favourite spot — a big, flat stone which overhangs the water. He walks unhurriedly, a trifle clumsily. He wears a light cotton *chapen** with a breast pocket where he keeps a box of chewing tobacco. The collar of a linen shirt tightly encloses a sinewy neck. From the top of his boot the scarlet handle of a *kamcha*** protrudes. Beknazar squats and stares long and attentively at the rapids, listens to the roar coming from the wide jaws of the gorge. Nothing escapes Beknazar's gaze. He reads the river like a book. He sees all, what it is carrying, all that has become its booty.

Beknazar is a hereditary sypaichi. He acquired his profession from his forbears in childhood and developed a life-long passion for it. His father was dashed to death in the Talas, in unequal combat with the rampaging river. He himself had been a hair's breadth away from death more than once. The stones of the river-bed have left a deep scar on Beknazar's forehead as a memento. His wife grew tired of trying to persuade him to give up his work. Beknazar was deeply convinced that all their line could follow only the profession of sypaichi. For him a sypaichi was a real man and Beknazar venerated the memory of his forefathers and strictly adhered to their customs. Moreover, to his wife's grief, he had long, almost since birth, intended his son, 16-year-old Alymbek, to be a sypaichi. It was his most cherished dream, that which gave meaning to his life. To leave behind him a real sypaichi meant that bis life had not been lived in vain, meant that he had done something useful for others. And Beknazar was secretly proud of his son, noting in him the qualities of a future sypaichi. From childhood, whenever the boy had free time from school, Beknazar used to take his son to the river to learn to understand the "language of the water".

Alymbek grew up a sensible lad. Like his father he is strong in body and from his motber he inherited large, beautifully set eyes. The calm, concentrated gaze of Alymbek gives him the appearance of an adult. And only the dark fuzz over the full lips

* jacket
** whip

emphasizes that be is still very young.

Alymbek had never contradicted his father before. But a few days ago, having returned from school, he suddenly said:

"It would be good, father, to make sluices on our sypai. You know, over there, on the slope where the main irrigation canal begins."

"Sluices?" Beknazar repeated. "And do you know what sluices are?"

"Certainly! The physics teacher explained to us. He says that if not now, then after the war all the sypai will have sluices."

"That is the problem, son, there are other things to worry about besides sluices — there is a war on. We can get along without them."

"But we could build wooden ones. Three collective farms together could manage something," Alymbek insisted.

Beknazar did not like his son's tone of voice.

"Do not become too clever, Alymbek! We can do without your thinking on the matter. Your job is to go to school and watch your father at work while he is still alive. When you finish the seven years' schooling in the summer you can go to work. For us, my son, the main thing is experience, acumen, a good eye. Praise God, your forefathers and I have lived a century on the Talas without any sluices."

Alymbek did not reply but looked at his father in astonishment.

In the mornings, when Beknazar rode out to the sypai, the neighbours would joke:

"Our Beknazar has gone to listen to the 'pulse' of the Talas."

And in truth, sitting on his beloved stone, Beknazar like an experienced doctor studied the breathing of the mountain stream. The Talas is a nomadic river. When it is in flood it can shift its bed several times. It will flow along one edge, depositing rocks, sand and silt and then move to the other side. You go over to the former bed and the bottom is already dried out by the sun. So go ahead and guess where the main channel will run. It bappens that you miscalculate: build sypai across one place and then the water disappears. Which means the dam was built in vain. Or else the water is shallow and tall weirs are built in order to raise the water-level and suddenly the river rushes in with powerful force, streams into the irrigation ditches and washes away everything. It is not so bad if the sypai cannot withstand the pressure and are carried away, otherwise you have to dismantle them, destroy that which for so long and with such determination you constructed with your own hands.

The neighbours who lived on the left bank constantly asked for Beknazar's help. He never refused, but demanded that everything be done as he said.

The sun had long risen but only now, having climbed high, did it

light up the entrance to the canyon.

Beknazar's face expressed anxiety. The river had turned cloudy. Bushes torn out by the roots bobbed past, which meant the water was rising and would soon be in flood. Beknazar's ear caught the creaking of tripods which formed the backbone of the dam. The water pressure was increasing. And that, precisely, was what was worrying the sypaichi. What would happen when the overflow began? "God forbid!" thought Beknazar. "The sypai will be carried away. There are no men left and women cannot handle the work of reconstruction."

Beknazar's fears did not prove groundless. In the night a thunderstorm broke out.

"Wake up, Alymbek, wake up!" The apprehensive voice of his mother roused the boy. "There's a storm! Your father is saddling the horse, you'll ride to the sypai with him. And be carefull at night, God forbid that be should attempt to go into the river!"

The shutters slammed, the yellow tongue of flame inside the lamp darted about. They mounted the stallion. In order not to fall off, Alymbek clung tightly to his father's belt. Beknazar spurred his horse blindly into the darkness, pitilessly whipped the little horse right and left and sometimes hit Alymbek's legs instead. But the latter kept silent. It was not the time for complaints. The rain beat slantingly at their faces, the wind howled through the tattered tops of trees, the air reeled from the thunder and smelled of burning. Beknazar knew he could not save the situation even if he raised the whole collective farm. But he could not sit at home at such a moment! The thougbt that tomorrow the farms might be left without water forced him out in the middle of tbe night to the sypai. He knew, too, that there was no point in taking Alymbek with him. But he wanted his son, the dearest being in the world to him, to share the bitterness of these difficult hours, he wanted Alymbek to see the enraged river with his own eyes, to comprebend the cost of man's toil, to know what is disaster. Alymbek must be strong of will and brave of heart. Only such a man, daring and fearless, can become a sypaichi. That was how Beknazar himself had been raised and that was how Alymbek would grow up.

They dismounted at the river bank. In the darkness it was hard to discern what was happening with the torrent. Their ears were deafened by the roar of the water. The wild, untrammelled force surged forward, dashed boulders along, frenziedly clambered up the banks. In a solid wall of rain the stormy sky united with the river. Beknazar squatted down and after peering in, said:

"It seems they have not been swept away yet. See, there is a big billow there. The sypai are still holding."

Over the canyon, one after another, shafts of lightning crackled. Thunder rumbled and echoed in the mountains. Alymbek shuddered when he saw the formless, boiling deluge gush out of the jaws of the chasm. The swell to which Beknazar had just pointed rose in a wall and at the same second disintegrated.

"Now it is all over," Beknazar said in a strange, deflated voice.

Zig-zags of lightning rent the sky and the light picked two people out of the darkness, standing in silence at the river's edge.

"Never mind, son." Beknazar embraced him. Pressed to his father, the boy could feel the beating of his heart. "Never mind, we will take our share from the Talas. That is why we are men."

The alarm was sounded throughout the area. The collective farms on the right bank were without water. In the morning the chairmen of the farms and Beknazar were already present at the *raiispolkom**. It was clear there was no time to waste.

Beknazar was asked how long it would take to reconstruct the sypai.

"If we have enough people and the materials—two days!" he answered confidently.

Beknazar did not speak without foundation. In the night the water had shifted to the left bank and where the sypai had stood it was now shallow. This fact simplified the situation considerably, people could work without fearing for their lives.

By evening a large gathering was camped on the river bank.

As was his custom, Beknazar sat on his stone and with pursed mouth peered fixedly at the dirty-grey crests of the Talas.

"Alymbek, go find out from the brigade leader," he ordered, "whether the wire MTS* was supposed to send . . ."

When Alymbek had gone a few paces, the father recalled him: "Wait!" Coming right up to him, Beknazar placed a heavy hand on his son's shoulders. "It is a serious business. Tomorrow you must be an example to others . . . You are accustomed to the work, but for some of them it will be their first time . . . You are my son . . . You are the son of a sypaichi . . ."

With the coming of dawn the Talas resounded to a cheerful bum and the knocking of hammers. Pyramids of sypai stood ready on the banks. They are ordinary tripods made of strong, tied logs.

"Twine the top around! Pull tighter on the wire!" Here and there Beknazar's voice could be heard. "What are you staring at? Place the cross-bar lower! Hey, pile the stones over here!"

The sun peeped out and smiled at the unprecedented spectacle.

"Take it!" Beknazar ordered.

"Take it!" the others replied in chorus and carried the first tripod

* Executive Committee of District Council (organ of local power) in USSR.

* Machine-Tractor Station

toward the water. Alymbek, straining, supported the cross-bar with his shoulder. The pebbles and rubble of the river-bed tickled his feet.

The first sypai was erected at the mouth of the irrigation ditch. The next ones were placed at even intervals ever farther out into the river. The filling in between tripods was directed by Beknazar himself. Bundles of hay and freshly-cut brushwood were brought in by pack-horse. Stones were passed from hand to hand in a long line and logs dragged up. Out of all this, gradually a dam took shape. Beknazar kept urging on the work, but in his heart he exulted at the progress of the job.

After dinner the level of the water rose to the mouth of the irrigation canal. By evening rivulets of water began to stream timidly along it. But the major and most difficult part of the job still lay ahead: the sypai had to be extended almost to the middle of the river, otherwise the canal would not be filled.

The following day the work proceeded more slowly. The swiftly rushing water knocked down the two farthest-out sypai several times.

"It's all right! It's all right! Do not be downcast. We will try again," Beknazar encouraged the people. "At the front, now, the boys say that when one attack fails they try a second time, a third . . ."

The canal filled with water and the hearts of the people were filled with joy. Water returned to the fields. But Beknazar had no intention of stopping the work. Under his direction the dam was continued in a semi-circle upstream.

"We must insure ourselves," Beknazar said. "The water has gone over to the left bank, here there is less of it. After the flood abates the river will become shallow and then we will be short of water. Since we have begun — let us carry through to the end so that we will not have to suffer a second time."

No one contradicted him. The construction of sypai was wholly entrusted to Beknazar. Alymbek wanted to caution his father:

"*Ata*,* perhaps we have done enough? The water in the canal is already full to the brim and if the flood waters rise it will bring no good."

These words immediately reminded Beknazar of their recent conversation about sluices. He could not recognize Alymbek, there was something new, unfamiliar about his son. But what it was exactly, the father could not determine.

"What is this, my son? You have grown up — does this mean you may not respect your elders? First sluices, now . . ."

For the first time Alymbek clearly caught a note of moritification in his father's voice. He burned with shame that he had

* Father

involuntarily caused the old man's distress. But his father's mention of sluices fanned his indignation.

"We can't do without sluices, father! In order to safeguard both the irrigation canal and the dam we must have sluices."

"Go." Beknazar's voice trembled. "I answer for the work."

The Fate punished Beknazar. At sunset, when the work was completed and people noisily began preparations for departure, the waters of the Talas began to rise. Out of the mouth of the canyon, whirling frenziedly, burst breakers dark with sand and silt. Dashing themselves against the left bank, they recoiled towards the middle of the river. The people crowded together on the slope, watching the current in consternation. Before their eyes the course of the river gradually began to shift to the right bank.

They stared in silence. No one knew what to do. Soon the dam was submerged in water and only the tops of the tripods forlornly poked above the surface. The water in the canal began to slosh over the edges. At least the canal must be saved. But to accomplish this the sypai would have to be destroyed. Beknazar could not bring himself to give the order, he could not risk the lives of people. On the bend where the canal curved round the slope to the right, away from the Talas, the catastrophe happened. The bank was washed away and in an unrestrainable cataract the water surged down to the river. The Talas did not give up its water, it took it back to the last drop, it smashed the banks of the canal and was proceeding in a waterfall to break up the ravine. All this happened so quickly that the people were in a state of stupefaction.

Beknazar stood in the middle of the crowd. It seemed that he was struck deaf and had lost the power of speech. Without a murmur, the people awaited a miracle from him — after all, he was an old sypaichi. But Beknazar was silent and no one said even a word to him, no one dared to reproach him. Everything that had happened was too terrible and simple.

As for Alymbek — they had forgotten him. He stood, nostrils nervously distended, without a drop of blood in his face. He felt unbearably ashamed for his father, whom the others still hopefully looked toward, for his helplessness, for his own powerlessness. The water, which for two days they had been wresting away from the river, was returning once more to the Talas. It was humiliating that with so much water in the river, the tobacco fields, the orchards, the grainfields should dry up. Alymbek's thoughts feverishly searched for the causes of the disaster. Couldn't they have, without any harm, drained away the excess water if there had been sluices? Wouldn't the canal have been saved in that case? But why then didn't his

father think of it, why didn't the others?

Beknazar, head drooping, turned away and through clenched teeth muttered:

"It is God's will!"

The people sighed heavily.

"No!" someone's harsh voice cried out.

The crowd was stunned by the thunderbolt. With raised head Alymbek determinedly approached his father.

"No!" Alymbek loudly repeated. "You are responsible, father!"

The people gasped.

"We will always remain helpless until we build sluices, until we give up our sypai!"

When Alymbek's words penetrated Beknazar's consciousness, the blood rushed to his head, his neck and the scar on his forehead grew crimson and bis heart missed a beat.

"What?" he croaked and raised his *ketmen** over Alymbek's head. Alymbek did not flinch. The ketmen froze in the air. "Away, dog! To your father . . . Before all the people! I'll kill you!"

Hurriedly people rushed in and tore the ketmen out of Beknazar's enfeebled grasp.

It is desolate on the gloomy banks of the Talas. Slap, slap, slap . . . the water splashes below the stone, washing up and once more carrying away the velvety grains of fine sand.

"Well, Beknazar! Disgraced yourself?" the Talas rumbles. "Your own son has jeered at your grey hairs. Ill fame will follow now . . . You could not manage me, but your son thinks he can do it differently, thinks he can subdue me in his own way! But he will not overpower me either!" The foaming Talas gloats.

Beknazar's head falls lower and lower. But the Talas is irrepressible. "Eh, sypaichi! More than once I have bruised your backside. Thank your stars you are still alive. You refuse to give up? Too bad. I will not be conquered. See, your son has disobeyed you and left. And you wanted to leave him here, to carry on your work, to make him another sypaichi such as yourself. But he is gone. He has gone far away. You are old, and your hands no longer obey you . . ."

Slap, slap, slap . . . the water splashes below the stone.

Four years passed. Much water flowed into the Talas, much changed in Beknazar's life. The old man grew gaunt, reserved, kept to the house. The collective farm chairman tried to convince Beknazar to stay on the job but he flatly refused. He closed up within himself and led a secluded life.

With quiet sympathy the people said of him: "After that incident on the river the old sypaichi's spirit was broken."

Alymbek came home every holiday, held long conversations with his father, embraced him,

* a farm implement with a long handle

kissed him, but to no avail — Beknazar would not forgive him the insult.

It was spring. The hydrotechnician Alymbek Beknazarov hurried home to his father. Perhaps today, this lovely day, he would be able to convince the old man to resume his work, to give him back a father's love.

"We are beginning work, ata! Come with us. You will help me," Alymbek urged. "Perhaps you will return to your work?"

"No, son," Beknazar said frowningly. "You can do without me. Now you are educated. What have I to do there?"

Alymbek left with a weight on his heart and Beknazar sat in the shade of an apricot tree and dourly watched as lorries drove off in the direction of the canyon and as people, singing cheerfully, rode past.

Did not his soul long to join them? But Beknazar did not acknowledge even to himself how much he missed company and his work. His hands begged for a job, for an important, arduous job. That he of all people should continue to mess about in the garden! No. He thirsted for real work, to once more, while he was still alive, tackle the mighty strength of the Talas. But pride and self-respect prevented him from even considering it.

One morning Beknazar was awakened by a sudden roar. The sound of explosions came to him from the canyon. As fast as he was able, the old man climbed to the top of the roof and shading his eyes with a trembling hand peered intently in the direction of the explosions. He saw how in one brown column after another the earth flew upwards. Something enormous, incomprehensible was taking place out there.

"What is happening?" Beknazar asked himself out loud. "What are they doing?"

His heart contracted. He felt sorry for himself, a helpless old man who couldn't understand what was going on around him. On the banks of the Talas people were doing something, but doing it without him, without Beknazar.

"No, I will find out! I will see!" and quickly he began to descend the ladder.

Beknazar found his staff and unobtrusively, through backways, made his way to the canyon. At the slope he began to waver. He could not make up his mind to go openly, directly.

"They will laugh at me . . . Say: why did you come? When we asked — you refused . . ."

Beknazar stealthily climbed the slope and cautiously peeked out over the stone. He could not recognize the place. The banks were a hive of activity. Tip-up lorries, loaded with stones, sand, clay, scuttled back and forth.

"And that must be an excavator! No wonder they talk about it . . . A veritable miracle machine, how it picks up the earth," Beknazar marvelled.

Continued on p. 101

International experts call this A Revolution in Foundry Work

by Yevgeny MUSLIN
from the magazine ZNANIYE — SILA

A new Soviet method of manufacturing casting moulds augurs a revolution in the foundry field. A new moulding mixture has been developed: the usual sand is rendered fluid so that it flows like a liquid. But when required it can quickly solidify. This technique, developed at the Soviet Union's Central Research Institute of Engineering Technology, has been utilized so far in more than 200 Soviet plants and has been offered to member-countries of the Council for Mutual Economic Assistance. Licenses for the use of this method have been obtained by countries in Europe, Asia and America.

An Experiment That Looks Like a Trick

"See? It's just common sand," a lab assistant at the Institute's foundry department said to me as she pointed to a little bucket. "It contains about 11 lbs. Note that it's dry."

I touched it with my finger. It was dry sand, all right.

The assistant poured it into a mixer and sprinkled it with a few drops of some liquid from a test-tube. Then, from a retort, she added about half a glassful of another liquid. The sand remained dry.

"Now watch carefully!" she said.

She started a small engine humming, and the mixer's shaft began to revolve, its blades beating up this non-cohesive dry mixture. Suddenly the sand turned dark, as if some water had unnoticeably been poured into it. Without any visible cause, with every turn of the blades the mixture became wetter and thinner. Then the lab assistant poured it into moulds and covered them with a piece of veneer, held down by a light weight.

A few minutes later she turned the moulds upside down and solidified "bricks" fell out.

It all looked like a trick: before my very eyes 11 lbs of sand had been transformed into a liquid, which suddenly became as hard as granite.

Before these changes could be achieved Moscow scientists had had to solve a difficult problem in the laboratory in which I watched the "trick".

Drawbacks of the Old Processes

The treatment of metal is an odd combination of the most up-to-date automation with primitive manual operations. Ultra-modern machines with programmed control, capable of cutting, milling and grinding parts with a precision of up to a micron, co-exist with arduous manual labour preceding the casting of stocks for these parts — rough stocks with a margin of error that can run practically to inches.

Moreover, at one time it appeared that, paradoxically enough, with the progress of engineering the volume of manual work would inevitably grow.

The point is that in the engineering industry, with its rapidly advancing serial production and with the output of mass quantity uniform items increasing every year, the variety of metal goods, their models and makes is growing still faster. Therefore more and more different moulds are required, and their manufacture was until recently believed to lend itself to practically no automation.

In general, working conditions in a foundry hold little appeal.

A summary of the traditional casting procedure which has taken shape over the centuries will help the reader to understand its main problem.

Before casting a stock the foundrymen do the following. They take a flask — a special box which is taken apart like a bivalve test — and fill it with moulding sand, into which they put the pattern of the stock. The pattern is removed, leaving a cavity into which they pour molten metal. But to keep the sand from crumbling and to make its walls retain precisely the shape of the pattern the loose mass has to be tapped long and hard and subjected to vibration.

This process creates a deafening noise and a lot of dust is raised. In addition many arduous operations are done by hand.

The drawbacks seem all too obvious but how can they be removed? This question interested Dr. A. M. Lyass and his colleagues, P. A. Borsuk, Y. T. Dolbenko, I. V. Ryzhkov, A. S. Tkachenko and I. A. Onufriev of the Institute. Once they worked out a precise formulation of their task they found that to achieve their aim they had, above all, to replace the usual moulding sand with some other mass, which would require no tapping or vibration, with the attendant noise and dust. Besides, the scientists wanted to make a mixture which could flow down troughs or through pipes.

But experts could offer no ready-made substitutes that met these requirements.

The Search for a Liquid Solid

Calculations produced discouraging results. To make the sand need no ramming or tapping, it had to be turned into a liquid: only liquids have fluidity — they are incompressible. On the other hand, the sand had to be hard so that it could stand the flow of molten metal. And it had to be absolutely dry, or else there will be an explosion when molten metal is poured. The drying process should not be too long. But too fast drying produces cracks, which distort the shape of the pattern.

There were other requirements, too, such as heat and chemical stability, absolute harmlessness to human health, simplicity of manufacture, cheapness and so forth. Obviously, combining such contradictory requirements in one material presented quite a problem. Many researchers thought it insoluble.

The research done by this group, undertaken in collaboration with colleagues in other institutes, training centres and plants, required great patience, painstaking effort and dedication to the job. The experimenters had to review all methods evolved by physical and colloid chemistry, physico-chemical mechanics and other sciences.

They met with innumerable failures. Either the mixture refused to flow, or it refused to solidify. Year after year the experimenters reported to the academic council that the results were negative; year after year they had to answer well-argumented attacks by opponents, who believed that the new line of investigation led up a blind alley.

Naturally, after several years of what appeared to be futile efforts, the patience of the Institute administration wore thin. And so it came about that Dr. Lyass and his group were offered one year more — the last. If within that time nothing promising resulted, their research would have to be postponed indefinitely.

History relates that the sailors of Columbus, wearied by the long journey, presented an ultimatum to their captain: if within the next three days they failed to sight land, their caravel would turn back. Columbus was lucky. The foundry researchers enjoyed a similar stroke of luck. Of course, said Dr. Lyass later, neither he nor his colleagues intended to abandon their efforts, even if they had not succeeded within the year. They had decided to carry on their search outside their regular working hours and at their own expense.

It's Simple When You Know How

The underlying idea of the invention is very simple.

To the non-cohesive mass, say ordinary sand, some material with an active surface is added. Very little of it is required. But when mixed, it forms a lot of stable foam. The hard particles are enveloped in bubbles and divided by air cushions. Now, when in contact, they slide as if lathered.

Such "lubrication" sharply reduces inner friction and the non-cohesive mass acquires the properties of a liquid. It flows easily, penetrating through the narrowest cracks and filling the smallest cavities, and like a liquid, requires no ramming. But, unlike a liquid, it solidifies just a few minutes after the foam begins to settle. It solidifies of its own accord, without special drying, heating or cooling and without any extra mechanical or chemical action. It turns into a stable monolith, which duplicates all the depressions and convexities on the pattern.

To achieve this simplicity the scientists had to solve a number of complex problems. It took years of painstaking theoretical and experimental research to choose the most powerful foaming agents and find the best ways of mixing, to develop foam that would appear and disappear precisely when necessary .

In a word, the long years of what appeared to be blind groping in the dark and endless trials and errors were not spent in vain. Finally the researchers succeeded in creating mixtures good for the casting of stocks from ferrous and many non-ferrous metals. These mixtures are manufactured from cheap, easily obtainable components such as liquid glass, wastes of chemical industries and metallurgical slag (which, until recently, plants could find no use for).

Advantages of New Technology

If an old skilled foundryman entered a foundry today that uses liquid self-solidifying mixtures suggested by the Institute he would be amazed by what he saw.

First, the foundry is smaller — only a half or less its former size. At the same time it has more open space: many of the tools and machines, ranging from spades to sand-rammers, have been removed. There is no noise of vibrators and other densifiers. There is no dust.

Flasks are delivered to an automatic device which stands in the middle of the foundry and resembles a hydraulic press. When the oven-door opens, a moulding mixture flows in a broad stream down a slant trough without raising dust or getting stuck. Though the flasks are of different shapes and sizes, they call for no changes in the production process — the worker fills them up, that's all. The new mixture easily reaches into every cranny between the flask walls and the pattern.

If the stocks are cast from different alloys and different moulds are required, the composition of the mixture is changed automatically. The operator presses a button and through proportioners the needed substances in the required proportions are brought into the mixers.

It turns out that the casting of stocks can be fully automated!

The new production process has brought a gain in time as well. Previously, the preparation of a mould for the casting of a steel bucket of some ten cubic yards took two workers a whole shift. Now the process is completed in 20 minutes.

The new foundry process has been introduced in more than 200 Soviet plants. Using the new mixtures, the country already obtains millions of tons of molten metal, thousands of times more than it did a few years ago, saving tens of millions of roubles.

The laboratory of Dr. Lyass was visited by experts from the United States, Britain, France, Federal Germany, Sweden, Japan and other celebrated metal-producing countries. The press of different continents spoke about an "epoch-making event in the Russian foundry industry" and about a "Russian revolution in foundry practices".

Licenses for the use of the new mixtures have been obtained by firms in the United States, France, Italy, Sweden, Norway and India.

Bulgaria, Hungary, the German Democratic Republic, Poland and Czechoslovakia, member-countries of the Council for Mutual Economic Assistance, have acquired, as part of their cooperation scheme, all the information for the industrial use of the liquid self-solidifying mixtures.

Dr. Lyass and his co-inventors have been awarded the Lenin Prize.

Revolution in Foundry Practices? It is More Than That!

This discovery (or, if you wish, invention) offers bright prospects in other fields of engineering. The principle of making quasi-liquid of non-cohesive materials is interesting from different angles, above all, naturally, from the angle of the production process.

Imagine that something like it has been done with concrete. After all, if the experiment has worked with sand why shouldn't it work with cement? If it does, it may produce a real revolution in the building industry.

Multistorey blocks of flats, TV towers and dams for hydroelectric schemes would go up much faster than at present, when the hardening of concrete takes several days. Just as in foundries, the thundering vibrators and rammers would become redundant, along with the plants for making prefabricated ferro-concrete, with their huge collections of moulds of hundreds of types and dimensions.

The non-cohesive components of the future walls and roofs would be delivered straight to the building site. Houses would be moulded from powder — the fantasy of architects would no longer be trammelled by a limited set of standard materials.

Self-solidifying mixtures may prove useful in art, too. They have already aroused the interest of monumentalist sculptors.

Meanwhile, the inventors carry on their research enthusiastically, improving the new production process and expanding its sphere of application.

SYPAICHI

Continued from p. 95

The whole irrigation canal, right to the memorable bend, was now made of concrete. Sluices, painted a bright brick red, were installed at the head of the canal and on the sloping side.

"Now that's really something!" Beknazar said in astonishment. "They've really got it! Now even the Talas will become meek!"

He was burning with impatience to examine it all closely, to touch it with his own hands, but for some reason he quailed and was embarrassed before those sweating, tanned people who worked without noticing him. Beknazar was all set to leave inconspicuously when he heard Alymbek's voice. His son was explaining, showing something to others and leaning on a big, grey rock, was writing in a small notebook.

Seeing him, Beknazar rushed forward. Small stones, dislodged by his feet, rained down the slope. Quickly he approached Alymbek.

"You have begun a good job, Alymbek," Beknazar whispered, wiping the perspiration from his face. "In our line, all have been sypaichi, but such as you we have not had . . . You — you are a big sypaichi!"

"AEROBATICS" ON ICE

from the magazine YUNOST

Irina Rodnina and Alexei Ulanov of the Soviet Union made figure-skating history when they won the pairs skating event at the world figure skating championships at Colorado Springs in February last year—they were the first to get away with it at first try since the championships started seventy years ago.

They kept the title in March this year at Ljubljana, Yugoslavia.

Here Irina and Alexei are interviewed by Gerard Yelensky, a sports columnist.

Question: How did you get started in ice-skating?

Irina: When I was eighteen months old I developed TB, and spent some time in hospital. Afterwards I was supposed to have plenty of fresh air, and my parents used to take me for long walks on frosty days. To make it more interesting for me they bought me a pair of skates, and I joined a figure-skating group at the local amusement park for children. I liked it very much and could have skated all day long. I kept up figure skating through my school years, reached quite a good standard, and began training at an army sports club for my father was a commissioned officer.

Q: Had you recovered from TB by then?

Irina: By that time I was as fit as a fiddle. But my progress in pairs skating was slow. True, I showed up well at the 1963 national youth championships but then my partner joined a different sports club. For about a year I skated alone, even without coaching, until Stanislav Zhuk, the famous trainer, took charge of the figure-skating section at our club. He made great efforts to find a partner for me, and at long last, in May 1966, he introduced me to Alexei Ulanov.

Q: How did you like the prospect of skating with someone much taller than you, someone who does not seem a good match for you at first glance?

Irina: I didn't give it much thought. I realised that in solo skating my achievements were likely to be rather modest, and as for the pairs, I thought the coach knew best what kind of partner I needed. Besides, he wasn't altogether a stranger — I had seen Alexei at contests.

So we joined hands, and off we went.

Q: And what were you doing in sport, Alexei — before you met Irina?

Alexei: I was a keen skater as a youngster — probably, because all the boys and girls in our courtyard used to skate. I remember the day Father gave me a present, the best thing I could have wished for — a pair of skates. They weren't figure skates, just plain skates, but anyway something to start with. There was a rink nearby where figure skaters trained, and I watched them do various "stunts". Then I tried to imitate them.

But I longed for a pair of figure skates, and Dad gave them to me for my seventh birthday. That was on November 4, 1954. On that memorable day I went to sleep hugging a pair of skates to my chest. In the autumn of 1955 I started lessons at the Young Pioneers' Stadium in Moscow.

Q: How did you come to specialise in pairs skating?

Alexei: It's a long story. When I was ten, I used to go to the stadium with my young sister, Lena. We were in the same group — I was the only boy there. By the way, boys considered figure skating then — and many do now — a sport for girls.

Q: You mean, you've never considered hockey or football more masculine sports than figure skating?

Alexei: Never. Who said that figure skating is not for men? Take supports in the pairs, for instance. They're quite difficult — no easier than many things in gymnastics or athletics. But

The champions are trained by Stanislav Zhuk, one of the best figure skating coaches in the country.

while a runner, jumper or weightlifter is allowed all kinds of grunts and groans and grimaces, a figure skater must always have a smile on his face. His partner may weigh anywhere between seven and nine stone but he mustn't show the slightest effort as he lifts her up and holds her above his head. He has to do this many times during the five minutes on the ice, and it requires considerable physical strength and stamina. A figure skater must be an all-round athlete — in as good form as a football player, if not better.

I had to put in a lot of effort myself before I caught up with the top-notchers. Despite my rather long experience in solo and pairs skating (with my sister), at contests I did not show up as well as I could.

Q: Why not? What was the reason?

Alexei: First of all, I wasn't concentrating on the pairs. Sometimes I skated single, sometimes with a partner. I should have made up my mind five years earlier than I did. Another reason was the time shortage: for ten years I attended three schools —

a sports school and a music school, besides ordinary school. Everyone in our family just loves music. When I finished music school I entered the Gnesin Higher School of Music. As you know, you have to put in just as much time and effort for music as for sport. Regular and intense training is necessary for both. But don't get me wrong: I'm not complaining about my fate. In fact, I'm quite satisfied with it. Besides, music and figure skating go together.

Q: How did you react to Stanislav Zhuk's suggestion that you skate with Irina?

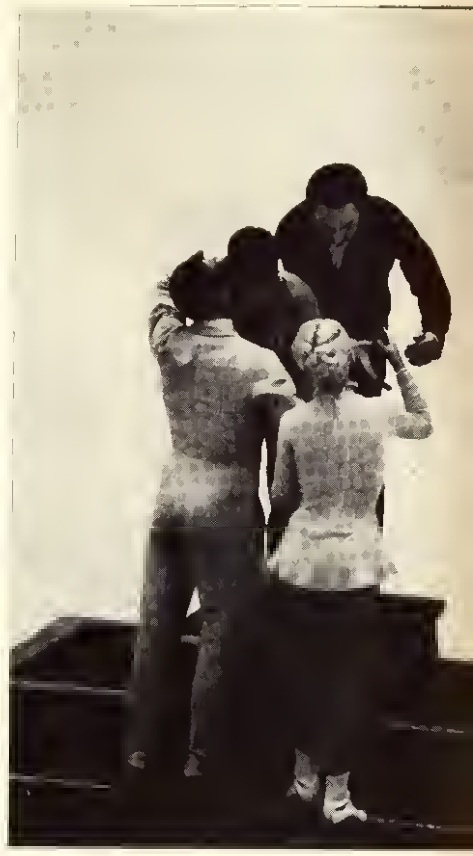
Alexei: I was very enthusiastic. I had some doubts at first, though: at sixteen Irina looked a mere child.

Q: Is that why she was dubbed "the chick"?

Alexei: Yes, she is rather small, and inclined to be carefree... I'm ten inches taller, and outweigh her by about two and a half stone. Beside me she does look like a chick.

Q: Who leads in your pair?

Irina: I don't think a duet needs a leader. It is more important to have confidence in your partner, and to be in harmony with him. Frankly, I don't like being led, and at first Alexei and I used to have tiffs during training sessions. But that's a thing of the past. Now we have



Lyudmila Beloussova and Oleg Protopopov, many times world, European and Olympic champions, congratulate Irina and Alexei. The mastery of the former champions will not be forgotten by those who saw them on the ice.

healthy competition instead: he jumps high, and I try to outjump him; he runs fast, and I try to outrun him. I don't like being second to anybody. Perhaps that's what distinguishes our pair. This

way we kept each other up to the mark at our debut.

Q: When was that?

Irina: In March 1967, at an exhibition performance in which world title holders took part. I remember the day very well. The display was held in Moscow's Palace of Sports. Although we slipped up a few times, on the whole our performance was not at all bad.

Alexei: We attained major success in 1969. We were in better shape than ever and had high hopes. However, our trip to Garmisch-Partenkirchen, West Germany, for the European championships was nearly cancelled because of a little ice-hockey game we indulged in after a regular training session shortly before the championships.

Irina, a keen ice-hockey player, was in one of the mixed teams, and she caught the puck on the bridge of her nose. She looked so "exotic" that we were worried that we might not be allowed to go. Thank goodness, intensive treatment, including home care, helped, and soon she looked all right. She had to powder her nose heavily at first though.

Q: I suppose, you gave up playing hockey after that, Irina?

Irina: I did not.

Q: How do you feel about taking part in championships?

Alexei: Well, we always feel very worried and anxious before championships. We realise that it's going to be hard going, but all the same we feel as if there is something special in store for us, although contests are now part of our everyday life. Victory gives us a tremendous lift.

Irina: We also like international competitions because we have a chance to meet our foreign friends. I speak a bit of German, and Alexei can speak English. We made friends with the Kaufmans, Janet Lynn, Tim Wood, Ondrej Nepela, Gabrielle Seyfert and the Steiner-Walther pair.

Q: What characteristic features have you noticed in the compositions you saw at the 1970 championships?

Alexei: All the compositions were packed full of intricate figures. There were some novelties really worth noting. But the ultra-complex elements did not always form an organic part of a composition — they stuck out, so to say.

Q: How about your own composition — will you be making it more complex?

Irina: Certainly.

Q: Some people claim that figure skating is becoming less and less of a sport and more of an art. What do you think?

Alexei: I'd say it's the other way round: figure skating is increasingly becoming more of a sport. The struggle is fiercer, the tempo faster, and programmes are more complex. Each new composition requires more physical and nervous energy, stronger will and greater ability. We are convinced that in figure skating there is a future for those who keep making their composition more complex, to those who go all out for "aerobatics" on ice.

Q: What in your opinion was the greatest sensation of the last championships?

Irina: I'd say the performance of the Soviet dancers Voityuk and Zhigalin. They were unusually cool and collected and carried through their programme with precision, winning the European bronze medals.

Q: Do you mean that coolness and precision are enough to ensure success in a competition?

Alexei: Coolness, precision and taste — in the style of performance and the selection of music, standard of technique, will power, and so on and so forth. But perhaps the most important things are a creative approach to making up a programme and a clever, understanding coach . . .

Q: I suppose, you have all that, otherwise you wouldn't have become champions?

Alexei: Well, at least we have that kind of coach.

* * *

Coach Stanislav Zhuk was present during the interview, and to round it off he made the following statement.

Zhuk: Many people have asked me why I made a pair out of such an unlikely couple. My whole concept was based on contrast, but a contrast in which the partners would supplement each other. Irina is an improviser by nature. She is high-spirited and enterprising. She really enjoys skating — she has a sense of freedom and gaiety on the ice. And so, to make full use of her potentialities in pairs skating she needed a special kind of partner, one whose qualities I even find it difficult to formulate. I spent a long time scouting around for a partner for Irina. When I saw Alexei Ulanov at a contest I knew at once he was the man I was looking for. As you see, my intuition did not fail me.

Despite the unquestionably great success scored by Irina and Alexei, I'm not inclined to overrate their achievement. They, and all other skaters, should not forget one very important circumstance: figure skaters representing a country can win an international title only after someone from their own country earns prestige for their national school of figure skating. For Irina and Alexei the way to the top rung had been paved by Lyudmila Belousova and Oleg Protopopov. My pupils are aware of this, and we feel deep respect for the two skaters who have done so much for Soviet sport.

by Dr. Grigori ANTIPIN,
Army Medical Officer

from KOMSOMOLSKAYA PRAVDA

He Swallowed Death to Prove a Medical Theory

The ampules of germ culture were in a bag under the bed in his hotel room.

Znamensky put the bag on a chair, unpacked the ampules and selected from them only those marked in blue ink with "300". The inscription meant that each of the selected ampules contained 300 million live pseudo-tuberculosis bacilli.

He emptied the contents of one of these ampules into a glass, added some water from an ordinary hotel carafe, swished it round and after holding it up to the light he swallowed the lot. Then he went to bed and tried to sleep.

Next morning he felt fine. His pulse and temperature were normal. Although he knew there had been no mistake, he pulled the bag from under the bed and checked the ampules again to be on the safe side.

He took another ampule, this time with the inscription "500". Five hundred million bacilli did not taste any different to three hundred, but the 300 million dose had been considered optimal for self-infection; too big a dose would result in an extremely rapid onset of the disease and this might nullify the whole experiment.

Six hours after he had drunk a third dose, Znamensky began to shiver violently. His temperature rose sharply and he felt terrible pain in the back of his head. These symptoms were exactly the same as those typical of the onset of Far Eastern scarlet fever. The speed at which the disease was developing removed his last doubts.

The experiment had started.

Znamensky, chuckling with pleasure, paced the floor with cotton-wool feet. His teeth chattering, and overcoming a feeling of great fatigue and his headache, he knelt beside the bed and pushed the bag with its dangerous contents far back against the wall. With great difficulty he dressed, went out of the door and headed for the Academy.

He managed to get himself to the infectious diseases hospital of the Academy and registered as an in-patient.

It was a peculiar illness with a complex set of "deceptive" symptoms. It was taken for grippe, scarlet fever, jaundice, encephalitis, appendicitis and very many other diseases, and in each case the diagnosis was wrong.

There were outbreaks of this strange illness in one area after another in the Far East. The illness always appeared in spring, but not every year, and there appeared to be no regular cycle. This scourge which could not be properly diagnosed was provisionally called "Far Eastern Scarlet Fever".

The agent of the disease remained unknown and hit-and-miss methods had to be used to cope with the epidemics.

Symptoms rather than the cause of the illness had to be treated. Vladimir Znamensky, a medical officer of the Pacific Fleet, was the first of his colleagues to determine that the irritant causing this disease was the microbe of pseudo-tuberculosis (an infectious disease affecting lungs and intestines), and bearing no relation to actual tuberculosis. Znamensky spent nine years studying hotbeds of epidemics of disease before he arrived at this conclusion.

However, such a discovery means nothing by itself. In the course of a serious scientific discussion the personal conviction of an individual researcher is not important, for scientists demand absolute proof to back up a theory.

Lt.-Colonel Vladimir Znamensky not only proved his theory but found the best antibiotic to cure the disease — laevomycetini. Dr. Znamensky first encountered the problem which engrossed him for the next nine years when on graduation from the Leningrad Military Medical Academy in 1959, he was posted to the service of the Soviet Pacific Fleet at Vladivostok where an epidemic of the mysterious illness was raging.

At the naval hospital where Dr. Znamensky was working there were a vast number of contradictory diagnoses of the

disease, which disabled 300 people within a fortnight. There was one death, but in writing out the death certificate doctors were unable to state clearly the actual cause.

In definitions of this mysterious disease only negative descriptions could be given so far — it was not scarlet fever, it was not plague, it was not influenza. There was nothing for the specialists to put their fingers on. So they searched around in medical history for a disease with similar characteristics.

Dr. Tumansky of Saratov, a Russian city on the River Volga, had earlier reported 12 cases of a disease which was very similar to the Far Eastern scourge. His statistics were gloomy enough — 11 of the 12 cases had been fatal, and final diagnosis as a rule had been possible only at the post-mortem. Dr. Tumansky's own opinion was that it was almost impossible to give a correct diagnosis while the patient still lived.

Japan had experienced several epidemics of what appeared to be the same disease. There it was called tsutsugamuchi, or Japanese river fever, a type of glandular fever with a 30 per cent mortality rate. What was more, Japanese bacteriologists had managed to isolate a pure culture of the microbe causing the disease. This seemed to be a big step forward, but unfortunately it turned out that the only link between tsutsugamuchi and Far Eastern scarlet fever was the fact that the latter sometimes assumed some of the symptoms of tsutsugamuchi — they were one of its many disguises.

Scientists decided that the microbe causing tsutsugamuchi was not the cause of the mystery disease, which was due to some virus.

Gradually the supporters of the virus theory dwindled, for they were accused of being conservative and retrogressive.

Dr. Znamensky continued to believe in it, feeling that his colleagues were abandoning this theory too hastily.

When Vladivostok epidemic broke out in 1959 he had almost finished a scientific paper on how to distinguish the plague microbe from the highly similar microbe causing pseudo-tuberculosis.

During the next six years he collected data to substantiate his growing belief that the mystery disease was really pseudo-tuberculosis. He experimented with different bacteria cultures in various media, and tried them on mice, ably helped by two other doctors, Konstantin Bezlutsky and Anatoli Vishnyakov.

Their superior officers, fortunately, supported the virus theory of the cause of the disease. They did not oppose the experimental work Dr. Znamensky and his colleagues were doing, nor did they give them too much assistance.

The experiments finally reached the stage when another epidemic, paradoxically, would

have proved useful, as it would have provided an opportunity for testing out conclusions reached about diagnosis and treatment.

Not wishing to allow the study of the complicated disease to become bogged down in a mire of scientific dispute, as often happened for lack of opportunity for practical demonstration of a theory, Dr. Znamensky decided on a desperate course — he would infect himself with pseudotuberculosis, study the symptoms as the disease ran its course, and then treat himself according to his own theory.

Knowing that he would never be given official permission to experiment on himself, he applied for and obtained leave to visit his old Leningrad academy. There he submitted the results of nine years of research work. The authorities gave it serious consideration and told him they needed more facts to prove the correctness of his theory.

When he privately asked individual professors to establish a reliable panel of specialists to control his self-experiment, he was encouraged rather than otherwise by their silence — at least they did not try to dissuade him. He decided to go ahead immediately, before they changed their attitude.

* * *

Once admitted to hospital Dr. Znamensky refused adamantly to take any of the prescribed remedies.

He supplied all the details of how he had infected himself, and explained why he could not risk taking the medicines offered him — they would distort the typical picture of the disease and disturb its course before his theory could be fully corroborated.

He himself recorded all the early observations on his condition, and later he dictated them, begging the staff to go on making their own observations when he was no longer able to make them, and asking them on no account to treat him by force.

By the fifth day of the illness, Dr. Znamensky was in an extremely serious condition. Apart from his headache and high temperature, he had excruciating pains in the joints. He was suffering from insomnia, vomiting and violent shivering. His face, neck and the upper part of his chest were heavily flushed, his eyes were inflamed and his hands so swollen that he seemed to be wearing a gruesome looking pair of gloves.

The doctor keeping him under observation noted an enlargement of the liver and spleen and symptoms of cerebral irritation, so he consulted the head of the clinical department. Together they reminded the patient of Dr. Tumansky's doleful statistics and strongly advised him to terminate the experiment and take the prescribed medicines. Hardly able to move his tongue, the dogged patient reminded

them that Tumansky's report referred only to the disease in its second stage, which in this case would not be reached until the eleventh day.

A week after he had contracted the illness, Dr. Znamensky stopped shivering and his headache eased. He began to make up for lost sleep.

Then the awaited second stage began, with a rise in temperature and very severe abdominal pains.

Now Dr. Znamensky was on the point of collapse, and his earlier elation was replaced by a morbid apathy, broken by fits of anger and irritation. He showed a distaste for company.

But by now he had done what he had set out to do — in three or four days of the second stage there emerged a clear picture of a typical case of Far Eastern scarlet fever, as it had been called. Now he could begin the final stage of his experiment — the cure. His attendant doctors breathed a sigh of relief to see him swallow his first tablet of laevomycetini, the antibiotic he had finally selected as the cure after testing dozens of drugs on laboratory mice.

Dr. Znamensky remained in the clinic for 31 days, but most of the time he spent in the laboratory lending a hand in recording details of his observations.

On June 17, 1968, Dr. Znamensky appeared in the assembly hall of the Leningrad Military Medical Academy to defend his thesis, entitled "On the question of the etiology of Far Eastern scarlet fever".

FOLK ARCHITECTURE MUSEUM

A rather unusual museum of everyday life, culture and history of the past is being designed by the Town-Planning Research Institute in Kiev. The most striking feature will be its size, for it will occupy an area of 450 acres.

In one place, the township of Pirogov, not far from Kiev, natural features typical of the whole Ukraine are concentrated — field and forest, steep slopes and vineyards and a river and rolling hills.

Three hundred examples of the republic's wooden architecture will be transported to the site from all over the country. Such features as a rural home, a flour mill, a church, and a smithy will enable visitors to gain a real insight into the folk architecture and the day-to-day life of the people in the past.

From the Ukrainian newspaper RABOCHAYA GAZETA

THE KIRGHIZ...
Continued from p. 77

This is a very young city. Not long ago the 40th anniversary of the change of name from Pishpek, the old fortress, to Frunze was marked.

Today Frunze has about 430,000 inhabitants. Here are situated the Kirghiz State University, six institutes, the Academy of Sciences with its many research establishments, 13 technical schools, 66 day schools and 20 evening schools.

The people of Frunze are proud of their houses, parks and gardens, of their new theatre which is built according to national architectural traditions. They are eager to show it to visitors, to show the wall painting and frescoes, and will inevitably quote the Danish writer Hans Scherfig who wrote that their theatre was on a par with the magnificent Royal Theatre in Copenhagen.

"But we have more theatres than in the capital of Denmark," they will add.

"In the Ferghana area there is no town to touch Osh for pleasantness of climate or for purity of air," Sultan Babur, the conqueror of India, once wrote.

In fact, the annual mean temperature is almost the same as in Naples (52.5 degrees F)—although it is true that in summer time it is a little hotter and in winter a little colder than in Naples.

Osh is one of the most ancient Central Asian cities. In the tenth century it was an important trading centre on the route from China to India through Central Asia. Furthermore, it was considered a second Mecca with its own shrine—Mount Tatkh-i-Suleiman, and to 50,000 inhabitants of Osh there were 100 mosques and 54 medressehs.

Labyrinths of crooked streets and blind alleys, a disorderly jumble of clay huts with blank walls—this was the typical Asian town. The architects and town-planners responsible for the general reconstruction plan for Osh preserved monuments of olden times and the national flavour of the town. The sacred hill, together with the River Ak-Buroi were successfully incorporated in the overall composition, contrasting with the new buildings.

Modern Osh is an industrial and cultural centre in the Ferghana area. It has silk and cotton mills, a meat-packing plant, a pump factory, the second biggest in the country, a teacher's training college, a nursing school, two music schools, a branch of the Frunze Polytechnical Institute, 24 ordinary schools, a drama theatre and a stadium seating 20,000.

The products of Osh's light industry can be seen in any town in the USSR. The main consumers are Moscow, Leningrad, the Central Volga areas and parts of Siberia. The cotton ginnery sends raw material to the Moscow region and Siberia, while clothing is sold to Kazakhstan, Uzbekistan and Turkmenia.

by Alexander TUNIN
from the newspaper
LITERATURNAYA GAZETA

The Peak

A Documentary Sketch

Two Letters

London
The Alpine Club

Mr. E. Beletsky,
Dept. of Sport,
Kremlin,
Moscow.

Dear Mr. Beletsky:

I do not know if you remember me (the secretary of the Alpine Club) but certainly I remember your last visit . . .

Dear Mr. Blakeney:

Unfortunately, I am very tardy with my reply. Your letter wandered about a good deal in search of the addresee. By mistake, no doubt, you sent it to the wrong address . . .

The English letter-writer should have simply written: Leningrad, Kirov Plant, E. Beletsky, turner.

Every morning at seven-thirty, Evgeni Andrianovich Beletsky climbs to the third floor of the Central Instrument Shop, enters a glassed-in alcove and switches on his machine-tool.

The precision work requires cleanliness, quiet and moderate temperatures. On the wall there is a thermometer which registers 20 degrees Centigrade give or take half a degree. Overhead hang two lamps with shadowless reflectors — the same kind to be found in operating rooms. The tool produces a thin whiff of smoke. Beletsky holds a slim dauber soaked in oil . . . The tool buzzes like a dentist's drill, in brief, rapid bursts . . . Beletsky is short and plump, at his temples sprout tufts of greying hair, across the bridge of his nose there is a deep line and round, light-coloured eyes peer at you . . . He looks like the kind of slow, thorough, meticulous worker who has spent an age at his lathes and drills . . .

A letter from Japan

Dear Mr. Beletsky:

The editorial board of the monthly magazine YAMA TOE KOGEN (Mountain and Plateau) is requesting leading mountain climbers of the world to answer the enclosed questionnaire . . . We sincerely hope you will give us your attention . . .

Evgeni Beletsky Talks About Himself

I'm a Ukrainian, I was born in 1908. My father taught Russian in a country school. In 1925, when I turned 17, I went off to Leningrad and got a job as a turner in the Putilov plant . . . I remember my first wage-packet came to 16 roubles and 75 kopecks. The neighbours, when they were seeing me off to the station, tried to convince me to stay: "Why leave the land! You'll eat properly once in three years." But it didn't stop me . . .

The Former Vice-Secretary of the Party Committee of the Kirov Plant, Krasny Putilovets — N. N. Ostakhov:

At the time we were looking for an editor of the factory newspaper. Our goal was to provide the countryside with 12,000 Fordson-Putilovets tractors and the newspaper had to do its share to make sure we achieved our aim.

We discussed various candidates at length and finally our choice fell on the young communist, Evgeni Beletsky . . . For one thing, his active, one might say indefatigable nature attracted us. For another, it was obvious that he genuinely felt himself to be one of the masters of the plant and that would feed his creative imagination . . .

From the "History of the Kirov Plant, Krasny Putilovets"

On May 1, 1933, proletarian Leningrad greeted the motor cars of the Krasny Putilovets plant with thunderous applause and cries of delight. The cars moved slowly at the head of a huge column of demonstrators, their black paint and gleaming chrome sparkling in the sun . . . On May 19 of the same year, at 5:45 a.m., the motor cars were given the go signal on a race: Leningrad—Moscow—Leningrad.

One of the organisers of the rally was the turner, Evgeni Andrianovich Beletsky.

Evgeni Beletsky

Why did I become interested in mountain climbing? It began with my going along with a friend into the mountains, purely accidentally. Then I advertised mountaineering in the newspaper. I remember putting in such a head: "A Mountain Camp Provides the Best Holiday for a Machine-Builder." I suppose eventually I convinced myself. However, mountaineering has never been an end in itself. It's simply that it enables me to grasp . . . the fullness of life. It gives you enormous pleasure to pit yourself against a mountain. You see, man invented the volleyball court or the football field, but man's combat with a mountain is as natural and inartificial as nature itself . . . When you are in the mountains you feel you don't have a spare moment, the work is hard and dangerous. But later, down below, at home, you realise that you have stored up beauty that will last you a year . . . And the lessons in comradeship, when everything is shared in common — a crust of bread, a set goal, life itself . . . Such comradeship can afterwards withstand any trials — in peace or in war . . .

Reminiscences of K. S. Kharchenko, a Turner at the Kirov Plant

During the war Evgeni Beletsky made off for the front several

times. The first time he enlisted in a mountaineering unit of snipers operating in the Kola Peninsula. He spent two days with his comrades in an abandoned school on the Vyborg side. But on the third day a jeep came for him from the Kirov Plant:

"The turner Beletsky is hereby exempted from the army and drafted for special assignment by the Leningrad Military Command."

On another occasion he learned that the fleet was setting up a special ski unit and that the exemption from land forces was supposedly invalid. He handed in his papers to the military authorities and came to the plant to make his farewells, but the section chief locked Beletsky's pass inside his desk and made the necessary phone calls: "That Beletsky is again stirring up trouble . . ."

Evgeni finally got to the front after evacuation. He was put into a mountaineering snipers unit.

The mountain unit of 30 men, commanded by Beletsky performed a daring raid on the Klukhor mountain pass — the key to Mount Elbrus, Teberda and Nalchik . . . In Teberda they saved the lives of hundreds of children who had been brought there at the beginning of the war from all the bone-tuberculosis sanatoria in the Caucasus. Following the raid, Beletsky was singled out and sent to a unit that was being formed for a special assignment.

Excerpt from Marshal A. A. Grechko's book — "The Battle for the Caucasus."

The Hitlerites decided they would raise their flag over Mount Elbrus. They made lenghty and thorough preparations. Several Alpine units were assigned the job and on August 21, 1942, they put up two flags on the peak. Goebbels' propaganda machine acclaimed the event as an heroic feat. German newspapers shrieked that "Conquered Elbrus Crowns the Finish of the Caucasus!" The fascist flag waved only a few months over the highest peak in the Caucasus. The military command of the Trans-Caucasian front directed a group of experienced mountaineers, participants in battles in the mountain passes, to raise the Soviet flag over Elbrus. Three groups set out simultaneously . . . the third detachment of six men included Evgeni Beletsky and a front-line cameraman who took a film of the proceedings . . .

On February 13 and 17, two ascents were made of the western and eastern faces and the assignment was carried out — the fascist flags were ripped down and the Soviet flags raised. The fascist flags were handed over to the Trans-Caucasian command. All the participants were decorated . . .

Evgeni Beletsky received the Order of the Red Star.

Reminiscences of K. S. Kharchenko

Do you know how a gage maker usually works? First he traces a light design on the metal with callipers, then he sketches with a groove and files roughly. He spreads abrasive paste on an iron lap, rubs the future pattern against the lap, measures, again rubs, runs his nail, the trained nail of a gage maker over the metal . . . He stands over the bench an hour, two, three . . . Once Evgeni said to me: "There we are, mucking about with our precious nail when the whole business could be mechanised." It seems he had figured out just how it could be done. A cutter should be installed in the chuck and the axis of the turn-table tuned to the centre of the figure and the cutter would "sketch" tbe pattern with precise accuracy, according to all the rules of geometry. I said to Evgeni: "What's this? A new profession? A turner-designer?" He replied: "Why not? Why should we spend hours bent over a bench?" His lathe turned out a real beauty . . .

From tbe introduction to the book "Optical Profile-Grinding Lathes" by E. A. Beletsky and K. S. Kharchenko

This work is an attempt to describe the construction of mechanical and optical units of profile-grinding lathes . . . to set out the main rules of work on such lathes, drawn up on the basis of the experience gained at the Kirov Plant in Leningrad . . .

The book was translated and published in Prague.

Evgeni Beletsky

Mountain climbing is closely connected with the science of geography. In addition to the joy of climbing, there is the added pleasure of learning something new . . . It's as though you are not only climbing upwards, but also penetrating deeply into interesting things and phenomena . . .

S. V. Kalesnik, President of the Geographic Society of the USSR

Evgeni Beletsky is a member of the Geographic Society and he renders great assistance to the science of geography. He is a first-rate climber and can get to places the ordinary expert often cannot reach. He is observant, possesses considerable knowledge and a trained eye and is able to gather substantial material. His articles which have been published in scientific magazines contain interesting generalisations.

A Letter from Japan

I have read your latest book, "Lenin's Peak," with great pleasure. With your permission I would like to translate it into Japanese . . .

A Letter from Czechoslovakia

The publishing house "Sport" in Bratislava has commissioned me to translate your book "Lenin's Peak" into Slovak . . .

A Letter from the USSR Federation of Mountaineering

. . . In the spring of this year, the Royal Geographic Society of Great Britain addressed a request to this Federation to prepare a section dealing with the mountain ranges located in the Soviet Union for an "Atlas of Mountaineering" . . . We would very much appreciate it if you would accept the job, as you are well known to the Royal Geographic Society . . .

A Letter from London

The President and Committee of the Alpine Club has the honour of inviting Mr. E. Beletsky to a dinner, held in honour of the 100th anniversary of the founding of the Club, at the Hotel Dorchester, London . . .

Evening dress with decorations.

From Evgeni Beletsky's Speech in London

People of all countries are striving ever harder to know each other better. No clouds, which unfortunately still loom on the political horizon, are capable in our times of stopping man's desire for peace . . . We mountain-climbers well know that the worst storms in the mountains eventually come to an end, cloudless weather comes and the bright rays of sunshine light the landscape . . .

M. S. Tishukov, a Grinder at Kirov Plant, comments:

I have known Evgeni Beletsky for almost 40 years. He and I work side by side in the Tool-Making Shop. He is one of those people who always, under all circumstances, demand a great deal. A man should not only take a lot out of life, but also give a lot . . . As a matter of fact, the two are usually closely connected.

Don't think that Beletsky is a rarity among us. On the contrary, I would say that his type is a normal and natural development. The only thing is, perhaps Beletsky is just a trifle better at each of his chosen pursuits than others.

We are quite accustomed to the inventiveness of our workers in their interests and are not at all astonished. But if you summed them all up and paused to think, then the picture that emerged would indeed be worth marvelling at. For instance, just to mention those that come to mind: Mikhail Vikhansky, a tool-maker, heads a philately club which is famous in the country; the fitter Georgi Nikitin makes beautiful musical boxes and clocks; the electrician Vladimir Sazonov likes circus riding . . . In our Palace of Culture there are 12 amateur clubs in operation and over 5,000 people participate in them. Quite a number, you will agree!

I have noticed that usually the people who have hobbies are the most active ones, the most demanding of themselves in their work, open and straight-forward in character.

I can judge because for the past eight years I have been chairman of the factory sitting production council. This is an advisory organ. It consists of 180 people — 120 workers and 60 engineers and technicians. It frequently happens that major transformations are effected on its recommendations and initiative. For instance, in its time a section on automation and mechanisation in the plant was organised on the advice of the council and one of the plant's shops was retooled . . .

What makes people come out with suggestions, argue, prove, take on extra work? I think for the same reason that distinguishes Evgeni Beletsky — they always care about everything.

Telegramme

KIROV PLANT STOP TURNER BELETSKY STOP GREETINGS TO LEADING REPRESENTATIVE OF SOVIET MOUNTAIN CLIMBING IN CONNECTION WITH THE FIRST STRAIGHT FACE ASCENT OF THE PEAK WHICH BEARS YOUR NAME STOP IVANOV.

And so a new peak has appeared on the maps of the Pamirs — Beletsky's Peak — which rises about 20,000 feet above sea level. The fact is symbolic, it bears witness that man not only conquers the heights — he creates them. To each his own . . .

Animal House

from the Soviet press

Over the years the residents of one of Moscow's quieter side-streets must virtually have lost their capacity for surprise.

The surprises originate in a smallish, two-storey house standing in its own garden. There is apparently nothing remarkable about it. In fact, however, it has the oddest collection of inhabitants in the street. That's a fairly safe statement, for they include over 150 trained animals and 35 different varieties of birds — not counting 100 rats and 200 mice, all of them accomplished actors.

For many years one of the sights of the street was the daily outing, headed by a stately camel with its head raised arrogantly and lips disdainfully pursed. After him came an elephant, and then the rest of the inhabitants sauntered out behind them. After the demise of the camel last year at the ripe old age of 49, however, the outing stopped.

The house is called "Durov's Corner", having been set up by Vladimir Durov, famous animal trainer and scientist.

For fifty years Vladimir Durov's name was on the hoardings of Russia and many other countries, for he was a popular circus performer whose bold wit always drew applause and laughter. He used to call himself a clown, or jester, but in fact he was a deep thinker, an accomplished musician and sculptor, and the author of many interesting books for children. He had an immense knowledge of animal psychology and wrote a number of serious works on the subject which won wide acclaim from scientists abroad.

As a boy young Vladimir liked to teach tricks to dogs, horses and pigeons — always by kindness and encouragement, never by force. This was his method with his first actors — a goose, a goat, and his dog Bishka — and it was a method he stuck to throughout life.

He trained as a teacher, but

Vladimir Durov and his famous "actors" Zapyatatka and Bishka.

Washing clothes is raccoon Timka's favourite occupation.

The seal juggler.

preferred animals as pupils. He had an inquisitive mind and a vast capacity for research. On his own he studied biology, physiology and works on the activity of the higher nervous system. Anywhere was his laboratory — a hotel room, the circus stables, or the arena itself.

It was a dream of Vladimir Durov's to build a special house for his animals, in which they could live in conditions that would be suitable for each one. There he could treat them when they were sick, could observe them and study their way of life. In 1908 he bought a house, reconstructed it, and four years later opened it as "Durov's Corner". In 1919 it was equipped with a "practical laboratory in animal psychology".

On Vladimir Durov's death in 1934 his daughter Anna took over management of the house, and in 1938 she opened an animal theatre. It exists to this day, and attracts a constant and extremely appreciative audience of children and adults.

Visitors are greeted on the hall steps by animals — probably the only ones in the house untrained by Vladimir Durov or his assistants and successors. They are nevertheless the product of Durov's energies for he sculpted them himself — gigantic prehistoric beasts.

On the top landing stands a bear, not any bear, but a famous performer from Durov's circus act, the huge Mikhail Toptygin, stuffed for posterity, a reminder to older generations of adults who accompany children to the "corner" of the acrobatic tricks he used to delight them with.

Most of the animals, of course, are well and truly alive. There are foxes, wolves, badgers, Himalayan and Siberian bears, raccoons, and even an armadillo, a survival of a long-distant past. There are also ordinary domestic animals, such as cats, dogs, goats, and pigs, and birds as well.

You may ask a big black crow his name, and it will answer distinctly: "Voronok!" This is a Russian word meaning "Little Crow".

On request a hare will thump out a rat-a-tat-tat on a drum, a fox rings a bell, a raccoon industriously washes clothes in a wooden tub, and the Himalayan bear waltzes round to a suitable tune.

An incongruous lot of animals to live together, you might think, but there is no hostility among these odd neighbours.

A cat shares a cage with some rats, a fox and a cockerel eat their meals together, from the same plate, and so on. In the museum there are some stuffed figures seated round a table — a pig, a bear, a wolf, a goat, a cockerel and a fox, a hen and an eagle. These animals were actually participants in a circus act developed by Vladimir Durov, called "Animals at a Friendly Dinner".

Durov was able to make age-old enemies become friends, by the application of a little science. An example is the relations he fostered between a cat and some rats. A number of rats would be kept back from food held some distance away from them. Eventually they would be allowed to rush at it, and this would be repeated again and again. Then one day there would be a cat where the food had been. From habit the rats would rush in the same direction as usual, scaring the cat out of his wits. He would rush off as fast as his legs could carry him, and so would develop a healthy respect for them. Finally the cat and the rats would be put in the same cage. At first the cat would cower in a corner,

and the rats would lose their fears. Soon the animals would become used to living together and forget that they were old enemies.

Durov trained many animals. Even the ant-eater, with its small, poorly developed brain, would stand on its hind legs and hold a gun, crawl up a ladder, go to a bell and ring it by pulling a rope, and pull a cart with a monkey in it.

One of Durov's circus turns

Vladimir Durov in his laboratory. Punchi is loved and she knows it.

was an "Animal Railway". The trains were similar to the real thing, except for size. Monkeys acted as engine driver and signalman, while a porcupine was the despatcher. In the show it turned the pages of a book (the pages were of wood) and filled in reports on trains running behind schedule. A muskrat swung a lantern to signal the departure of the train, while the station-master was played by a dog who swaggered up and down the platform in a red cap. A hare, rats, hens and other animals were passengers, and as the train pulled out the cat conductor inspected the tickets.

Another circus number was "Seafaring Rats" — a very complex and interesting performance. Imagine this spectacle:

Sailors hustle and bustle around on the deck of a big, white steamship, getting ready to depart. Porters carry sacks, and bags and bales from the shore up a wooden gang-plank. Other porters run

down for more loads. Passengers hurry up the gangway with suitcases in their teeth. The sailors, and passengers and porters are all played by rats. The door of the captain's cabin opens and rat-captain Serko walks out. He yawns, he stretches, as if he has just woken up, then he walks around the deck on his hind legs, looks down into the hold, checking the crane, sees to it that the lifeboats and lifebelts are in place. Finally, it is time for the ship to depart. Rat-engineer squats on his haunches and pulls at a cord. There are two long whistles and the sailors rush to the masts, quickly climb up, hoist the flag and unfurl the sails. The rat-helmsman ports the helm, and the ship goes sailing off to distant shores. The captain stands on his glass bridge looking through his spyglass. The audience are certain that he is examining the horizon. In reality he is drinking the milk contained in the spyglass. A storm

suddenly breaks out. The wind tears the sails to tatters. The ship is in distress. The rats rush to the lifeboats, let them down and save themselves from shipwreck. Captain Serko, as a captain should, is the last to leave the stricken ship.

The animal theatre in "Durov's Corner" is the smallest and most extraordinary theatre in Moscow. Vladimir Durov's words: "Teach by entertaining" are embroidered on the curtain by bright red silk. During the show each animal's performance is accompanied by a narration of its life and the methods used to train it. All the shows are arranged this way.

LETTERS TO THE EDITOR

Continued from p. 9

I would like to correspond in English, Russian and German with boys and girls from all over the world. I like books, music, theatre and collect postcards. I am also interested in the life of people in different countries.

Marga Reichold, 9027 Karl-Marx-Stadt, Chemnitztal Str. 233, German Democratic Republic

I would like very much to have pen-friends in France, Germany, Holland, Greece and Italy. I am 37 and am interested in travel, history and stamp collecting. I can write only in English.

Sultan Mohd, c/o Ansari Book Stall, Prince Road, Quetta, West Pakistan

I am interested in having pen-friends from all countries, especially Finland, East European countries, England and the USA. I am 18 years old. My main interests are reading science fiction, collecting old coins, photography, pop music, philately. I can correspond in English and Bengali

Jamal Hasan, 50, Indira Road, Dacca-15, East Pakistan

I wish to have pen-friends, especially girls, in the USSR, Poland, Yugoslavia, Bulgaria, Germany, France, Spain, Netherlands and the USA. I am 18 years old. I collect stamps and viewcards. Can write in Bengali and English.

Manjurul Alam, 12, International Hostel, University of Sind, Jamshoro, Hyderabad-6, West Pakistan

I want very much to have pen-friends in the USSR and other European countries. I am a 25-year-old Malaysian. I am a veterinary student of Bombay University. Can correspond in English only. My hobbies are reading, philosophy, pop and classical music, athletics and traveling.

Roy A. Sirimanne, c/o Veterinary College Hostel, Parel, Bombay 12, India

I would very much like to correspond with young people in the USSR, the USA and England. Can correspond in English only. I am an 18-year-old student. I am interested in photography, scientific books, space programme and sport.

G. Babu Rao, B[28] Krishnappa Block, 15th Cross Malleswaram, Bangalore, Mysore State, India

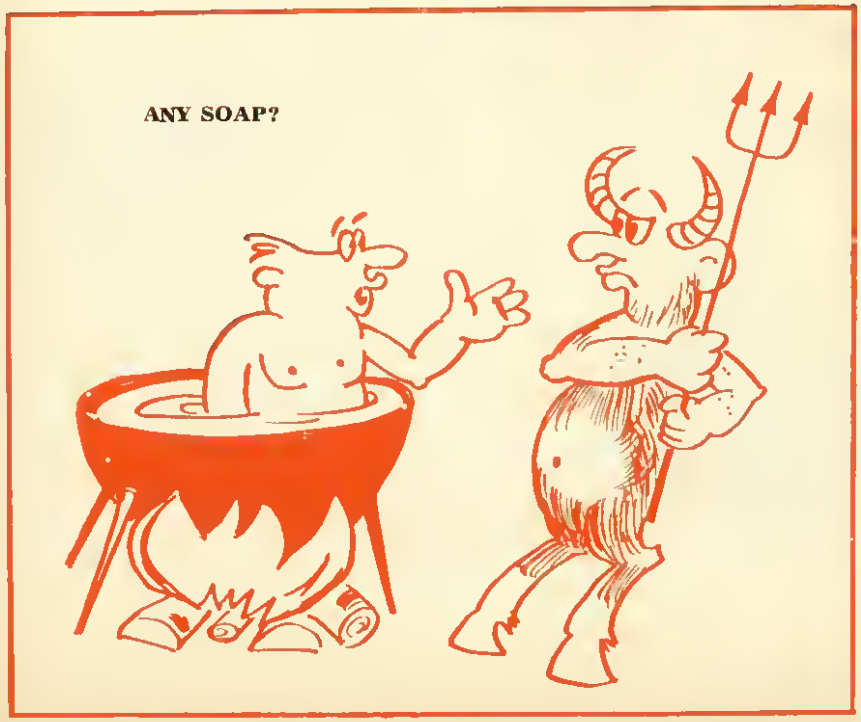
I wish to have pen-friends all over the world. I am 21. I like to read novels, go in for sport and collect viewcards.

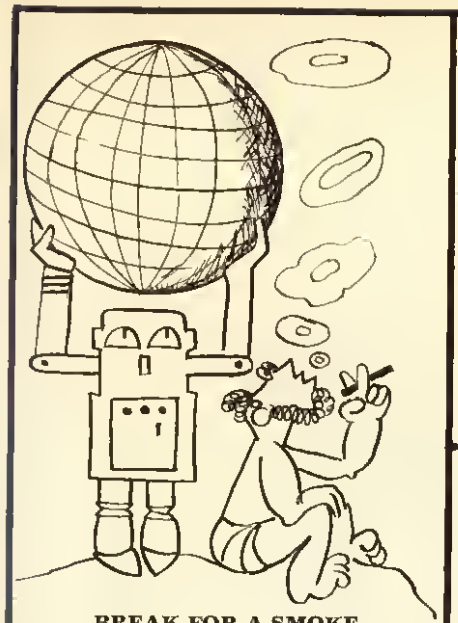
C. Ananda Jothi, 135, Meris Hostel, Madurai Medical College, Madurai-13, Madras State, India

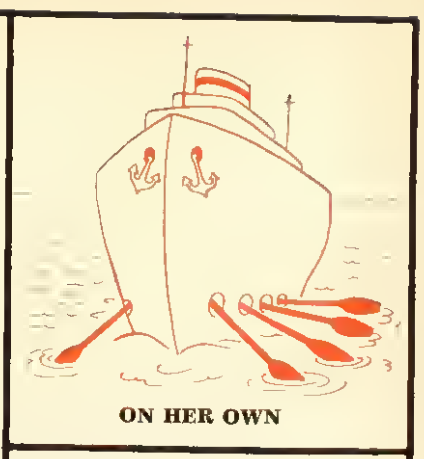
Humour

Like everyone else, for some reason I was born. That gratifying event took place a quarter of a century ago. For a long time they tried to teach me something meaningful, but having tried out several trades (I've been a turner, a fitter, a set-designer), from purely egotistical considerations I became a cartoonist because running around from one newspaper office to another is very good for the nervous and cardiovascular system. My dream is to live to a venerable age without losing my sense of humour in the flight of time, even if I do lose my teeth and my hair.

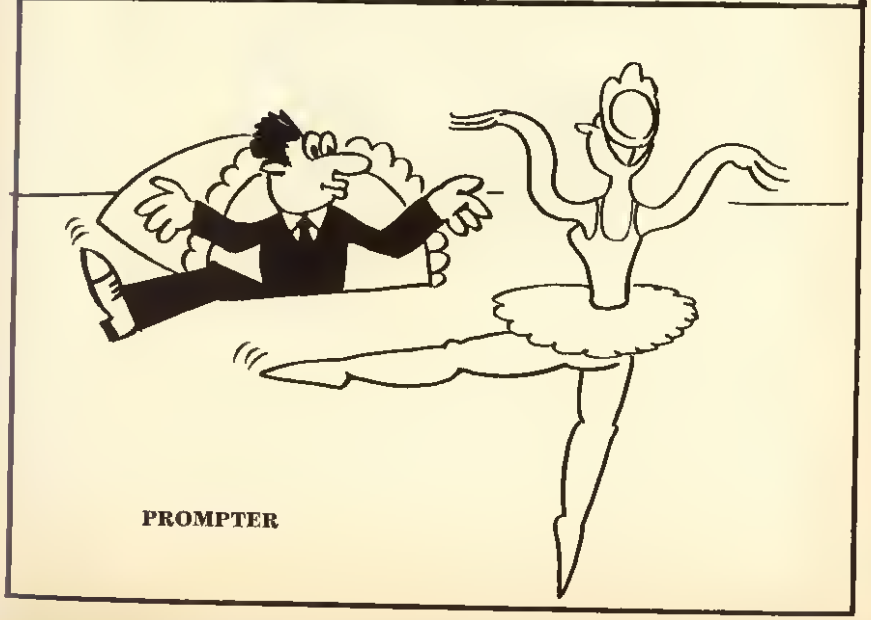
Vladimir Schwartz



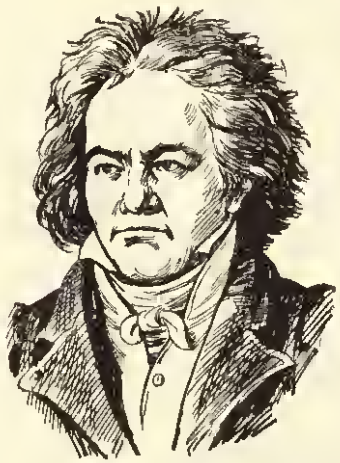




P.S. I have been published in LITERATURNAYA GAZETA; KOMSOMOLSKAYA PRAVDA; KRASNAYA ZVEZDA, and in the magazines KROKODIL; SOVIETSKY VOYIN and SOVIETSKY SOYUZ.



BEETHOVEN is Dear to Us...



On the Occasion of the 200th Anniversary of the Great German Composer's Birth

from PRAVDA & IZVESTIA

It has become a tradition that each year the United Nations appeals to the world to mark the anniversaries of great people of the past. This year, the 200th anniversary of Ludwig van Beethoven's birth is observed.

Russia can pride itself on the fact that Beethoven's music was highly esteemed here during the composer's lifetime, whereas in many countries his genius was recognised only posthumously. Beethoven's music has always drawn the attention of Russian composers and music critics who have contributed innumerable insights into Beethoven's works, important for the understanding of the latter's essence. The age of romanticism which followed Beethoven's death rejected the basic principles of Beethoven's symphonicism which contained breadth, life-affirming pathos, profound ideas and thoughts. Not until the appearance of Tchaikovsky with his genius, and the powerful Borodin, was the symphony reborn and developed in a new way, in all its many-faceted beauty.

In Russia, too, Beethoven found inspired interpreters. Anton Rubinstein,* whose performance of Beethoven's concertos and sonatas remained vividly in the memories of contemporaries as a powerful and unique experience, must be mentioned above all. Anton Rubinstein and his brother Nikolai** also widely popularised Beethoven's symphonic works. When famous Russian composers, such as Rimsky-Korsakoff, Balakirev, Glazounov, appeared before audiences in the capacity of performers, they invariably included Beethoven in their repertoire.

In Soviet times the great German's music received a dedicated and purposeful dissemination. In February 1921 — that is, only some three years after the triumph of the socialist revolution — a Beethoven Concert Hall was opened on the premises of the Bolshoi Theatre in Moscow. Speaking on the occasion, the first People's Commissar (minister) for Education, Anatoli Lunacharsky, said:

"*... we are present at the opening of the Beethoven Concert Hall which was formerly the czar's private foyer — completely inaccessible to the public. This Hall is one of the most exquisite and musically perfect in Moscow.*

"*This event cannot remain an isolated incident. Beethoven is too dear to us, Beethoven is too needed in a people's Russia striving towards communism, to limit our-*

* Anton Rubinstein (1829-94). Leading Russian pianist, composer and conductor.

** Nikolai Rubinstein (1835-81). Pianist, conductor, pedagogue and founder, in 1866, of Moscow Conservatoire

selves merely to a series of celebrations. This Hall will not simply be one named after Beethoven — it will be a place where Beethoven's genius, as expressed in the best of what he has bequeathed us in his music, will live, like some blessed being, ready to support us in a difficult moment, to inspire, to reward us with a smile of joy."

In Moscow, Leningrad and a number of other cities, full cycles of Beethoven's symphonic works, sonatas, quartets are performed annually. His works are constantly included in various concerts and invariably draw the interest of broad audiences. Soviet performers of Beethoven justly deserve the world fame they enjoy.

The 200th birth anniversary of the great composer will be marked with a broad flourish in the Soviet Union. In preparation, an All-Union Anniversary Committee under the chairmanship of the composer Dmitri Shostakovich has been formed. Numerous leading representatives of the arts and public are members.

A great deal of preparatory work has been carried out in the conservatoires and musical institutes. Theoretical faculties prepared lectures and reports on the life and works of the great musician which have been delivered to musical student bodies and wider audiences. Conferences on Beethoven's influence on the development of world music have been held by music scholars and critics. Conservatoires, philharmonic societies, choirs have dedicated special series of concerts to the event. The research department of the Leningrad Institute of the Theatre, Music and Cinematography has issued a collection entitled **Soviet Music Studies and Beethoven,** which consists of writings that illuminate various aspects of the composer's works. Musical sections in libraries have organised exhibitions of Beethoven's scores and monographs about him and held readers' conferences.

The compositions of Ludwig van Beethoven have been and are near and dear to each new generation of Soviet citizens. This thought was inimitably expressed in its time by the composer and music critic Boris Asafyev:

"Beethoven, who infects masses in the audience with passionate revolutionary pathos, determined resistance to violence, with the stormy temperament of a fighter for freedom, is dear to us. Dear as a great, courageous musician-citizen, who with his whole being, thinking, creativity, with each beat of his sensitive heart, caught the aspirations of mankind in his age and who created in his Ninth Symphony a majestic paean to human joy, to the gains of a mighty struggle."

In 1963, the State Musical Publishing House brought out a **Book of Beethoven's Sketches for 1802-03.**

For over a century the valuable collection lay in Russian archives. The original scores of the **Heroica Symphony,** the **Kreutzer Sonata,** the oratorio **Christus am Ölberge,** Piano Sonata, Opus 31, No. 3 and including several hitherto unpublished passages from Beethoven's works are among the finds. The three-volume edition was prepared for publication by Nathan Fishman, a staff member of the Glinka State Central Museum of Musical Culture where today the rare collection is housed. The folio of 174 pages is closely covered in Beethoven's hand and, as Fishman suggests, is connected to the volume known as "the Kessler" among Beethoven collectors.

Beethoven's manuscript has been published in the form of an album-facsimile. This makes up the first volume. The second contains the deciphering work done on the papers. The third includes studies which represent an attempt to analyse the creative processes of the great composer and textual commentaries on the deciphering of the manuscript.

* * *

In the Saltykov-Shchedrin Public Library in Leningrad there is an original Beethoven draft of five songs based on Scottish airs, Opus 108. They are scored for voice, piano, violin and 'cello and cover nine pages of ten musical note lines each. At the top of the first page there is a heading in German, in Beethoven's handwriting: "Scottish Songs . . . March, 1816."

The folio includes a sixth song based on a Ukrainian melody. An annotation attached to the manuscript and written by the famous Russian critic, Vladimir Stasov, reads:

"This folio of 'Scottish Songs' was presented to the Public Library by Mr. Gunke and consists of five original songs of Beethoven. Five have been published. The sixth has never been published. October 5, 1856."

Thus, Beethoven's musical adaptation of a Ukrainian song is a scarcely known composition.

There are altogether 41 original works of Beethoven in the State Archives of the Soviet Union.

Music for the Workers: Then and Now

by Alexander Kravtsov

from the weekly
LITERATURNAYA ROSSIA

There is no orchestra on the platform, and no audience in the hall, but it seems to me as I stand in the gallery of the Grand Hall of the Leningrad Philharmonic Society that the white columns and the organ's silver pipes are echoing with soft fluid notes, each column and each pipe contributing its own calm and clear music to the harmony.

It is an illusion I have often experienced in empty concert halls where the music of long-gone concerts seems to go on sounding eternally. As the organ pipes sing, one envisions far-off impressions, gained only from old photographs and documents. There is the scarlet slogan spread across the white columns: "Music for the Proletariat". There on the platform is Anatoli Lunacharsky, People's Commissar for Public Education. Alongside him are leading musicians of Soviet Russia in its early days. The hall is filled with workers.

What I am seeing in my imagination is something that took place in 1921, the year the first Soviet Philharmonic Society came into being. I recall that *Krasnaya Gazeta* (Red Newspaper) reported another event, in October 1925. It said that the club of the Krasny Putilovets plant had proved too small to accommodate all who wanted to crowd into it to hear the first symphony con-

cert to be conducted by the composer Alexander Glazounov.

"As Glazounov took his place," the paper said, "the huge audience greeted him with tumultuous applause, which developed into a real ovation.

"The programme included works by Glinka, Moussorgsky, Borodin and Glazounov, all Russian classics. The concert was listened to with immense interest and showed bow readily symphonic music is received by the masses."

Back in the gallery of the Philharmonic Society building, in the unwonted stillness of the afternoon, I listen to the story of grey-haired cellist Andrei Safonov, and picture myself surrounded by Leningraders in the grim days of the wartime blockade. There is an orchestra on the platform, but its members are dressed in an unusual way for such an occasion — they are wearing all kinds of gear including army shirts and felt boots, and only the conductor wears the traditional "tails".

Andrei Safonov tells me how Leningrad workers made it a point, even in those terrible days, to attend concerts in the hall of their city's philharmonic society.

Then Onik Sarkisov, the society's artistic director, tells me: "Fifteen years ago I got the idea of running a series of subscription concerts for workers from the Kirov plant, as the old Krasny Putilovets plant was later known, and where Glazounov had given his concert in 1925.

"Behind this idea was the fact that at that time the small public garden in Arts Square where the society's building stands, would sometimes be packed with a huge queue of people eager to get in to our concerts. Groups of members of our society regularly played in different departments of the Kirov plant. However, I felt it would be much better to attract the plant's young workers to our own hall, so I went to see them. I must confess I was not sure that we would be understood by these young workers. But the idea caught on, and every spring since then I have visited the plant to discuss the programme for the coming season with representatives of the trade union there.

"I remember that at first we tried to avoid involved oratorios and symphonies, so we began with *Egmont* by Beethoven, *Peer Gynt* by Grieg, and the Piano Concerto No. 1 and Italian Capriccio by Tchaikovsky. Year by year the programme has grown in complexity, so that now there is no difference to speak of between what is heard by sophisticated audiences and the Kirov plant workers.

"The plant provides ready helpers — a large group of enthusiasts led by Mikhail Flotsky, a metal worker of long standing. And they also attend concerts we give outside this series, bringing their families and friends, making many 'converts' to music."

Workers at the plant told me that much of the success in making the concerts popular among the Kirov plant workers was to be attributed to the well-known Leningrad music critic, Yuri Vaikop. "Our musical guide," workers called him. He gives them introductory talks on the history and content of the items to be played in the concerts.

Let me quote one of the comments on the first concert given 15 years ago, taken from questionnaires circulated by the society among the audience: "Neither the opera nor the drama, both of which I am very fond, have ever given me so much pleasure as today's symphony concert, the first I have heard."

Workers of the Kirov plant were the first to hear Dmitri Shostakovich's Twelfth Symphony and his *Execution of Stepan Razin,* among the finest works of Soviet music. Workers attend rehearsals and show interest in the performances of leading musicians, such as Yevgeni Mravinsky, conductor of the State Symphony Orchestra of the Leningrad Philharmonic.

They also help draw up the season's programmes by discussing them at special conferences called by the trade union committee. Led by Mikhail Flotsky, and helped also by Bianca Sokovykh, the amiable concert manageress, they do much to make the concerts a continued success.

Now the same idea has spread to the Baltiisky factory. It is the same story over again. So far the audience numbers only 250 — but they are people whose hearts have been won to music and who will spread their enthusiasm.

It all goes to show that a passionate urge for aesthetic uplift is widespread among the workers, who have shown themselves to be the friends of real art. And it is what Lenin meant when he said: "Art belongs to the people."

Dickens in Russia

from the magazine
RUSSKAYA LITERATURA

The centenary of Charles Dickens' death was widely noted in the Soviet press. Many articles devoted to the life and works of the great English writer appeared in newspapers and magazines.

It is undoubtedly true that Dickens has won the hearts of millions of Russian readers as well as authors and critics. It would be hard to name a single leading Russian writer who has not admired the enormous talent of the author of **Dombey and Son.**

Back in 1838, the Russian magazine **Biblioteka dlya Chteniya** (Library for Reading) prophetically wrote about **The Posthumous Papers of the Pickwick Club** that "... this book will survive the nineteenth century ..."

Between the years 1842-47 not a single work of Dickens' escaped the attention of Russian magazines. All his novels, stories, travel notes about America and Italy were translated into Russian in full or in long excerpts. Progressive public opinion was expressed by the leading literary critic, Vissarion Belinsky. In spite of the fact that Dickens' major work were still in the future, Belinsky saw in him "England's most notable novelist". He wrote that Dickens' social descriptions breathed "the terrible truth of reality".

A special page in the history of Russian "Dickensomania" was opened with the appearance of **Dombey and Son.** Belinsky wrote: "Have you read **Dombey and Son?** If not, hurry to do so. It is a marvel. Such a wealth of fantasy in the creation of sharply, profoundly truly drawn characters, I did not suspect not only in Dickens, but in human nature in general."

The entire reading public of

Russia watched the events in the novel unfold as instalments were published in the magazine **Sovremennik** (Contemporary) and **Otechestvennyie Zapiski** (Notes of the Motherland). **David Copperfield** enjoyed the same triumph.

The works of the English writer gained an ever-widening audience. By the middle of the nineteenth century he had become one of the "masters of man's thoughts" and his writings were looked on as a standard of artistry. One must indeed be a magician of the word in order to win such a reputation among the Russian people who have created a national literature of world significance.

Les us recall Trishatov's monologue from Dostoyevsky's **A Raw Youth** — the monologue about **The Old Curiosity Shop.** In this passionate, poetic hymn, Dostoyevsky's own voice can be heard, his deep emotion and the kind of illumination he experienced when reading the novel.

In one of his stories, Vladimir Korolenko described how he first became acquainted with Dickens. He had borrowed **Dombey and Son** from the library and began reading as he walked along, "gulping down scene after scene, without any hope of reading through to the end and quite unable to tear myself away".

Maxim Gorky wrote: "For me Dickens has remained a writer before whom I bow respectfully — this man brilliantly absorbed the difficult art of love for one's fellow man."

And in our day, innumerable Soviet readers of all ages and nationalities have felt the enchanting magic of Dickens' pen.

* * *

An Incident With Dickens

(A story)

by Konstantin PAUSTOVSKY

Yellow clouds over Feodosia. They seem ancient, mediaeval. Tin cans, tossed by the surf, clatter on the pebbles. Boys perch on an old acacia tree and stuff their mouths with dry, sweet flowers. High above the sea a transparent column of smoke rises — a motorship is on its way from Odessa. A gloomy-looking fisherman, with a shred of net serving for a belt, whistles and spits into the water — he is bored. On the shore near the fisherman sits a boy reading a book. "Hey, boy, give us a look at the book," the fisherman asks in a hoarse voice. The boy

meekly hands over the volume. The fisherman begins to read. Five minutes he reads, ten, he wheezes in his enthralment and says: "Strike me dead but this is good!" The boy waits. The fisherman has been reading for half an hour. The clouds have shifted in the sky, the boys have devoured one acacia and moved on to another. The fisherman reads. The boy watches him with anxiety. An hour passes. "Uncle," the boy says in a whisper, "I have to go home." "To your mother?" the fisherman asks without glancing at him. "To my mother," the child replies. "You have plenty of time," the fisherman says irritably. The boy subsides. The fisherman noisily turns the pages, swallows his spit. An hour and a half goes by. The boy begins to weep softly. The motorship is already coming into port, blowing its whistle nonchalantly and majestically. The fisherman reads. The boy cries openly, the tears course down his trembling cheeks. The fisherman notices nothing. An old dock watchman calls to him: "Petya, stop torturing the child! Give him back his book, have a drop of conscience." The fisherman looks with astonishment at the boy, tosses him the book, spits, and says with passion: "Here, you soul of a merchant, may you choke on your book!" The boy grabs the book and runs along the hot slope without looking back. "What was the book?" I ask the fisherman. "Ah, Dickens," he says with vexation. "That writer, he sticks like tar!"

Leo Tolstoy Reads Charles Dickens

by **Arsen SAKHALTUYEV**
from the magazine
INOSTRANNAYA LITERATURA
(Foreign Literature)

"Recently I have only been rereading Dickens' novels — **Little Dorrit** and **Bleak House.** In my opinion Dickens has not yet been fully appreciated. We don't know Dickens, but what power he has! In the past I thought these novels were ponderous and boring, but not now. What a powerful writer! He can put ten characters on the stage and you, reading, will not forget one of them: each hits you in the eyes."

That is what Leo Tolstoy wrote in 1885. In his youth he was enormously impressed with **David Copperfield.** But he did not see Dickens in the flesh until February 1861 when in London he went to hear a lecture on education by the English writer.

Chesterton, who knew Dickens, thought of him as small in build. But Tolstoy always described Dickens as a mighty figure: he saw him on the platform and remembered him so.

In 1885 Tolstoy suggested to the publishing house Posrednik (Intermediary) that a number of Dickens' novels be published by them. The suggestion was accepted. This publisher was rather fond of attracting the general reader by intriguing titles which described the contents. Thus: **Love in Gaol, or Little Dorrit; Daughter of a Convict, or From the Smithy into Riches** (Great Expectations); **Terrible Spectres, or a Soul Reborn** (A Christmas Carol); **Children of a Rich Man** (Dombey and Son); **A Gang of Thieves. The Adventures of Poor Oliver Twist.**

Tolstoy felt close to Dickens' humanism, his sympathy for the poor and downtrodden, the suffering and humiliated, to his faith in the triumph of good. In his pamphlet on aesthetics, **What is Art?** the author of **War and Peace** ascribed Dickens' works to the highest forms of art which promote the oneness of man.

Once, when he was already old, expectantly savouring the pleasure of reading Dickens, Tolstoy said: "He's there, (Dickens — Ed.) sitting in my room, waiting for me. How good!" Tolstoy accepted the great English realist as a live, spiritually close, man.

NEW YEAR PRESENTS 3,000 YEARS OLD

What is the origin of the New Year custom of giving presents and how old is it?

Archaeologists have found in Egyptian pyramids 3,000-year-old vases dating to the Libyan dynasty of the New Kingdom. The vases are inscribed: "Good beginning to the Year", an equivalent of "Happy New Year". The finds include bronze figures of apes, stone images of the Goddess Sokhmet, and other New Year presents, all with New Year dedications. These must have been the first New Year presents in history.

From the magazine MOLODAYA GVARDIYA

by Alexander YAKOVLEV

The Aim of Life

(continued from November issue)

From the order of the Commissar of Defence, Marshal S. K. Timoshenko, it was totally incomprehensible why our forces were forbidden to cross the border "until further orders". Or why our aircraft were allowed to strike no deeper than 60 or 90 miles inside German territory. The war was on but the command was not sure — was this an accidental attack? A mistake of the Germans? Or provocation?

Without dwelling on the tardiness of Timoshenko's directive, it reflected as well the uncertainty about what was happening at the front.

And yet the imminence of war had been expressed quite concretely.

Just before the beginning of the war we were frequently called in to the Kremlin to discuss improvements in the work of the aviation industry and strengthening of the air force.

At the end of February 1941 the plan for re-equipping the air force was adopted. During the course of the year new air regiments were to be formed and half of them would be

equipped with the new types of aircraft which had just been put into production. The formation of several paratroop corps was launched. Air defence forces were equipped with fighter planes, anti-aircraft artillery and special observation units. It was envisaged that during 1941 the majority of pilots would be trained to handle the new models.

And still it was hard to believe that war was upon us. For some reason it had seemed that if war did break out, it would come when we were completely prepared. We believed and yet disbelieved in its inevitability.

The first blow against the Soviet Union was delivered by the Hitlerite air force. At dawn on June 22, fascist bombers escorted by fighter planes invaded Soviet airspace and bombed peaceful towns. Our people learned about Heinkels and Junkers, Dorniers and Messerschmitts. The war which had hitherto been waged in aircraft design offices was transferred to the skies.

I was shaken by the news that by noon of the first day of war we had already lost 1,200 aircraft — 300 destroyed in aerial battles, 900 on the ground. All this indicated that we had been caught napping. My mind was unwilling to accept the thought.

Even in obsolete planes, Soviet pilots were able to inflict serious losses on the German air force. This is what a member of the German general staff, Gräffrath, wrote in his postwar memoirs:

"In the period June 22 to July 5, 1941, the German air force lost 807 planes of all types, and between July 6 and July 19, another 477. These figures show that in spite of the surprise attack, the Russians were able to muster the time and resources to mount a decisive counterattack."

This was quite unexpected by the Germans and not only prevented them from returning part of their air force to the West, as they had planned, but also forced them to replace losses on the Soviet front at the expense of their aviation strength in the West.

Nevertheless, in spite of losses, the Hitlerites were able to keep putting new fighters and bombers into action. On the Soviet-German front, 4,940 aircraft were thrown into battle — 3,940 German, 500 Finnish and 500 Rumanian — and they achieved control of the air.

Our aircraft industry was unable to replace the big losses we suffered in the first days of the war. On top of everything, because of the rapid German advance, one aircraft plant after another in the European part of the USSR and under enemy fire had to cease operations and be evacuated to the East. The

output of new types of aircraft decreased sharply and the obsolete fighters and bombers — the I-15, I-16, SB and TB-3 — could not compete with the latest Messerschmitts and Junkers.

It was essential to step up fighter-plane production in order to teach the fascist air-pirates a lesson and retake control of our skies. Attack planes were needed to combat enemy tanks. Our infantry expected protection from Messerschmitts and Junkers. But we had very few planes. Nobody could understand why we were suffering defeats and why the enemy was rapidly advancing deep into our territory. It was inexplicable. And we were all gripped by great alarm precisely because of the incomprehensibility of events.

Still, no one became downhearted. The feeling of the danger that threatened our homeland welded all aviation people together in united determination to redouble our efforts to provide the front with new fighting aircraft.

Our designing group was at that period working intensely on improvements to the fighter YAK-1, which had recently gone into mass production. The work was crowned with success: on June 24, 1941, on the third day of war, the test pilot Suprun pronounced the modified model fit and ready for action.

What was happening? What were the causes of the tragedies of the summer months of 1941?

With every passing day it became more obvious that there had been miscalculations.

There had been miscalculations not only in evaluating the strategic circumstances on the eve of war. Several errors made in the 1930s had led to the situation in aviation which prevailed in June 1941. This is how they appear to me now, almost 30 years after the beginning of the war.

One mistake was a preference for construction of heavy, multi-engined aircraft. Finance and the efforts of scientists and designers were channelled mainly into such machines.

The building of newer and newer models of giant planes undoubtedly diverted attention from work on other types of planes, including fighters. At the same time, air superiority, as was demonstrated in Spain, Mongolia and at the beginning of the Second World War, depends on a qualitatively and quantitatively powerful fighter-plane section of the air force. The quality of our fighter planes at the beginning of the war left much to be desired.

It is also significant that until the end of the 1930s there were only two design offices concerned with military aircraft. One

dealt with bombers, the other with fighters, and each had a monopoly in its field.

As already mentioned, the re-equipping of our air force began in the first months of 1941 but the new planes were few in number at the beginning of the war and in the first days our air force suffered serious losses.

Our difficulties were compounded because most aircraft plants were located in the European part of the country, between the western border and the Volga at that. Only an insignificant number lay beyond the Volga, out of range of enemy bombers. So because of the need to evacuate the plants to the East, to Siberia, we had to practically suspend production at a time when the front was begging us for replacements.

In spite of mistakes and miscalculations, the country was able, thanks to the great spiritual and physical resources of the Soviet people, to come through a desperate situation with honour; it overcame all hardships and sacrifices and crowned its struggle with a great victory.

For some time all our efforts were concentrated on the evacuation of plants. They not only had to be moved, at the same time new sites in the East had to be set up quickly to handle personnel and installations and production had to be got underway.

Thousands of freight trains began to move across the Volga, to the Urals and Siberia. Together with aircraft plants, tank, artillery, weapon and motor plants were evacuated eastward.

The loading and transportation of men and equipment proceeded during the most intensive period of enemy air raids — in the month of September. In a 24-hour period the air raid sirens wailed again and again, ack-ack fire thundered, bombs exploded. But the work of transporting men and machinery to the East did not halt for a second. Moreover, plants in the process of evacuation continued to produce. Each lathe was dismantled at the last possible moment, only after the set quota for machine-parts had been met.

Those days the Commissariat of Aviation worked at fever pitch. Almost all the major aircraft plants were "on wheels". The transfer had to be organised in such a way that they reached their destination as quickly as possible.

The freight trains had to take turns with military hospital trains and those carrying evacuees. Often the latter two had to be given preference. All this created enormous problems on the railways, not only because unheard-of numbers of trains had to be put through, but also in the organisation of food and at

least elementary services at stations for huge masses of people. The onset of frosts and snow added to the hardships, but despite everything the task was performed brilliantly.

Trains were on the move with their precious tools of production and in Siberia everything was being made ready for the reception of men and equipment. Plans were drawn up for location of workshops, electricity cables and water pipes laid, compressed air and steam lines put in — everything that needed to be done so that the machinery could immediately be put into operation.

We had to cut the loss of time to a minimum and resume production of the planes the front needed so badly. We could not expect quick aid from anyone.

Of this I was firmly convinced after taking part as an aviation expert in a three-power conference (USSR-USA-Great Britain) on military aid to the Soviet Union, which was held in September 1941, at the height of the evacuation.

The talks showed that we could count only on ourselves, on our own resources. And that meant the plant evacuation had to be carried out in an organised, disciplined manner with minimum loss of production.

The State Defence Committee sent me to a Siberian town where there was a large machine-tool plant which had been converted to aircraft production. I was assigned the job of organising fighter-plane production there as quickly as possible.

With pride I remember that three weeks after train delivery the plant was producing planes and three months later had not only attained the Moscow production levels, but considerably surpassed them. Within 11 months, production had increased seven and a half times over the pre-evacuation figure.

If before the war someone had said that it was possible to relocate hundreds of factories and re-establish production within such a short period, many of us would not have believed it. However, it turned out that the impossible became a fact.

Even though everything humanly possible was done, between October and December 1941 aircraft production fell drastically. The final month of that year was unbelievably grim. Less than 40 per cent of the planned output of aircraft came off the production line and only 23 per cent of the engines.

By March 1942 plane production was creeping upwards and deliveries to the front were speeding up. Nonetheless, the German air force was still numerically superior and significantly so at that. That superiority in numbers created the

impression that our planes were qualitatively inferior as well. In the early months of the war I personally talked to pilots on many occasions and with bitterness observed that many of them were confused on the issue.

More and more new planes arrived at the front and as our pilots mastered them and were convinced in aerial battles of the qualitative superiority of Soviet aviation technology, so their mood changed. When I returned from Siberia to Moscow in March 1942, through personal letters from air squadron commanders and ordinary pilots, as well as official reports, I realised a real turning point had been reached.

On March 10 we received a telegram stating that the day before seven pilots in YAK-1s had won an aerial victory against 25 enemy planes. I did not yet know all the details, but the fact itself was a source of deep joy.

The defeat of the Germans near Moscow created a sensation all over the world. It buried the myth about the invincibility of the German-fascist armies and destroyed all plans for a "lightning war". It marked the dawn of our victory.

In the first half of 1942 the re-establishment of evacuated aircraft plants was largely accomplished. In January of that year the aviation industry produced 1,039 planes, in February — 915, in March — 1,647. By July production was 30 per cent more than in June 1941.

In the second half of 1942, industry was on an even surer footing. Some production figures for fighters and attack planes: in 1942, 2,431 YAK-7 fighters were produced compared to 166 in 1941; production of the LA-5 fighters did not begin until July 1942 and reached the figure of 1,129; production of the IL-2 attack planes was getting on for sixfold that year.

Our air force began to receive substantial replacements. In the second half of 1941 the front received an average of 1,750 planes a month. In 1942 the number rose to 2,260.

That was a great feat.

The battle for Stalingrad began in the middle of July 1942. German forces approached the city and broke through the suburbs. A bloody struggle for each street, each building unfolded. Our people stood up to an army of half a million men armed to the teeth.

To support their infantry, the Hitlerites threw in the best of their aircraft, in particular the Fourth German Air Fleet. The Germans concentrated over 1,200 planes in the area. There were three or four of theirs to our one. Moreover, the base of the

Supersonic jet aircraft
YAK-28 in flight.

Eighth Soviet Air Army, which was defending the city, was three-quarters equipped with obsolete planes.

In the autumn of 1942 the State Defence Committee took a decision to sharply escalate the production of fighter planes. Designers and leading members of the Commissariat were sent down to the factories. I was once again assigned to the Siberian plant with the object of taking all measures to triple the daily output of YAKs.

While I was still in Moscow I learned of the severe losses suffered by our air force in the Stalingrad area. It was said, particularly, that the YAKs did not stand up to clashes with Messerschmitts. But in Siberia I was completely shattered after I received a phone call from the manager of a plant which also produced YAKs. In a panicky voice he told me that the YAKs were being shot down one after another.

When I returned to Moscow, I learned whence arose the talk that YAKs were so vulnerable. It seemed that on Goering's orders, flying aces from the much-talked-about squadron. The Ace of Clubs, which was part of the Berlin aerial defence, together with some of Germany's top fighter pilots, had been transferred to the Stalingrad front. Flying reserves must have been short indeed, if the Hitlerites had had to denude the defences of their own capital!

But it was not easy for us either. The Soviet pilots who flew YAKs against the German aces were in the main young, full of enthusiasm, but untried pilots. They came straight out of flying schools and lacked combat experience.

In order to break the deadlock, within the framework of the 16th Air Army regiments of the best fighter-pilots were formed, one of which was led by Major Kleshchev. These pilots had received their baptism of fire in the defence of Moscow and on other fronts.

They were provided with the latest YAK-9 fighters produced at the Siberian plant. More and more of these machines were making their appearance with every passing day.

And then came the moment we had all been awaiting with impatience: in the skies over Stalingrad Messerschmitts began to go down in flames!

Our pilots performed glorious feats, knocked the stuffing out of the German aces and convinced our young fliers that in the hands of experienced pilots Soviet planes were unquestionably superior to those of the enemy.

The skies of Stalingrad turned into a gigantic funeral pyre of fascist aircraft.

The German military historian, Gräffrath, writes:

"The German air force experienced great losses during the action at Stalingrad. Between November 19 and December 31, 1942, we lost 3,000 planes. Included in the number are not only those shot down, but also those captured by the Russians at airfields. Enormous quantities of ammunition, equipment and other materiel were lost."

The turning point in favour of the Soviet air force at Stalingrad was not an isolated episode. The German aircraft industry could no longer provide the Luftwaffe with the necessary number of replacements. Our industry, on the other hand, was growing with every hour. In 1942 German factories produced 14,700 military planes, whereas in the same year 25,000 were built in the USSR. In 1943 the respective figures were 25,300 and 35,000. Over a two-year period our air force was provided with 20,000 more planes than the German.

By the middle of 1943, the Soviet air force had twice the number of planes that the German-fascist forces had at their disposal.

The aircraft industry in the USSR did not restrict itself to increasing production: 1943 was a year of struggle for raising the quality and flight manoeuvrability of our aircraft.

Our design office produced the YAK-3. Lavochkin's office improved the LA-5.

On the basis of the IL-2, Ilyushin created a new, all-metal, twin-seater attack plane, the IL-10, with more powerful engines and greater speed (315 m.p.h.). With its two cannon and strengthened plating, the IL-10 was indeed a powerful fighting machine which brought fear into the hearts of the enemy, who dubbed it "the black death".

Bombers were also improved in quality. In the autumn of 1943 the mass production of Tupolev's TU-2 began, a plane which had earlier successfully passed its trials and been put into limited production. It was to replace the obsolete IL-4. The TU-2 was considerably superior to the German bomber Junkers-88.

The Kursk battle was a brilliant demonstration of the fact that our fighting planes had gained ascendancy over enemy aircraft both in numbers and quality. The Hitlerite high command and the Fuehrer himself expected to re-establish their reputation for "invincibility" at the Kursk salient.

According to German generals, in the beginning their offensive was planned to take place as soon as the spring muds dried up. But as Hitler insisted that 300 new Tigers and Panthers that

were still in production be utilised, the attack was postponed until July 5. The Tigers and Panthers were that "secret weapon" which the Hitlerites boasted to the whole world was their key to victory on the Eastern front.

The postponement was a boon, especially useful for us in aviation, as in the beginning of June 1943 we quite unexpectedly ran into trouble.

At the last moment, when our forces were preparing to repulse the new enemy advance, we learned that the YAKs received by the front from our eastern plants and which made up the vast majority of the fighter planes in the Kursk area, were not battle-worthy.

On June 3, Dementyev, Vice-Commissar of aviation and the man responsible for serial production, and myself were called into Supreme Command Headquarters.

Besides Stalin, Marshals Vasilevsky and Voronov were present. As soon as we entered the room we saw remnants of a cracked fabric wing skin on the desk. Ahead of us lay an unpleasant session.

The trouble was that the wing skin of the YAKs produced at one of our eastern plants had begun to crack and come apart in the air. There had been several such cases. The cause was the poor quality of the nitro-paint delivered by one chemical plant in the Urals where they had substituted hastily tested ingredients.

The paint was unstable, quickly affected by atmospheric conditions which made it crack and the fabric of the wing then separated from the plywood.

We were already aware of the defect and were taking all measures to correct the fault.

Pointing to the pieces on the table, Stalin asked: "Do you know anything about this?"

Then he read a report which had been sent him together with the remnants, from an airforce unit near Kursk.

We said we did know of cases where the skin had come apart. He interrupted us:

"What do you mean, cases? The whole of our fighter plane force is out of commission. There have been a dozen cases of the skin separating from the wing. The pilots are afraid to fly. How has it come about?"

Stalin took a piece of fabric on which the paint had cracked and come off in large patches, showed it to us and said:

"What's this?"

With indignation he continued:

"Are you aware that this is frustrating an important operation which cannot be carried out without fighter planes?"

Yes, we knew that serious battles were in the offing in the Orel-Kursk area and we felt terrible at that moment.

"How did it happen?!" Stalin exclaimed, becoming more and more heated. "How could you produce several hundred planes with such a defect? You must be aware that at this moment we need fighter planes as much as we need air! How could you allow such a situation to go on and why you didn't you do something about it sooner?"

We explained that it was impossible to detect the fault at the plant when the planes were being built. It could only be discovered with time, when the planes were out of the hangar and under open skies, exposed to rain, sun and other atmospheric conditions. Also it was impossible to detect the fault because as soon as a plane was built it was shipped to the front.

I had never seen Stalin so angry.

"So you did not know at the plant?"

"That is right, we did not know."

"You mean the fault was only discovered at the front, in the face of the enemy?"

"Yes, that is so."

"Do you know that only the most treacherous enemy could have done this. That's exactly what he would do — he would produce fit-looking aircraft that would disintegrate at the front! An enemy could have done us no greater harm, could have thought of nothing worse. This is work for Hitler."

He repeated several times that the most treacherous enemy could not have caused greater harm.

"Do you know that you have put the entire fighter-plane force out of commission? Do you know what a service to Hitler you have performed? You are Hitlerites!"

It is hard for anyone to imagine our state at that moment. Dementyev was flushed and nervously twisted a piece of the ill-fated wing skin in his hands.

Several minutes passed in deathly silence. At last, after walking up and down in thought, Stalin calmed down somewhat and inquired in businesslike tones:

"What are we going to do?"

Dementyev stated that we would fix all the planes at once.

"What do you mean by 'at once'? Within what period?"

Dementyev thought for a second, exchanged glances with me and replied: "Within two weeks."

"You're not fooling me?"

"No, Comrade Stalin, we'll do it."

I couldn't believe my ears. It seemed to me it would take at least two months.

Stalin had not expected that the fault could be rectified so quickly. My feeling was that even though Dementyev's promise would temporarily avert the storm, what later?

The deadline was accepted. Nevertheless, Stalin ordered the military prosecution department to investigate the circumstances of the affair, to find out how substandard paints and glues were shipped to an aircraft plant and why they had not been thoroughly tested under laboratory conditions.

On the spot, two commissions of investigation were ordered to the Urals chemical plant that supplied the paint and to the aircraft plant that produced the faulty planes.

After which Stalin turned to me and said:

"Doesn't your self-esteem suffer? How do you feel? You're being made a fool of, your plane is being sabotaged and you just stand by?"

"Comrade Stalin, I feel terrible as I fully realise the damage this misfortune has caused. But with Dementyev I swear that we will take the most energetic measures and in the shortest possible time the defect will be corrected."

When we left Stalin's office I heaved a sigh of relief but I could not help saying to Dementyev: "Listen, how can we carry out such a job within two weeks?"

"We'll see, but it's got to be done."

Due to extraordinary measures, we did in fact, in a matter of two or three weeks, manage to strengthen the wing skin on several hundred planes and remove the serious defect which at a critical moment in the war threatened to paralyse our fighter planes and leave our armies without aerial cover.

We managed to complete the work just in time, as literally within two or three days the famous Orel-Kursk battle began.

On July 5 the German high command launched an offensive on the Kursk Bulge. The Hitlerites attached great importance to the role of their planes. They threw in everything they had, including the fighter planes Focke-Wulf-190 and Messerschmitt-109 of the latest type, the bomber Junkers-88 and the reconnaissance Focke-Wulf-189. Altogether about 2,000 aircraft were involved.

The Hitlerites sent large formations of bombers, up to 150 in number, escorted by hundreds of fighters, in order to blast our front line. Together with artillery fire and tank attacks, the bombing was intended to wipe out our defences.

The dimensions of the aerial battles can be judged from the

fact that in six days of the enemy offensive our pilots shot down 1,037 nazi aircraft. The Germans could not take the drubbing.

On the third day of battle several hundred of our attack planes, bombers, dive-bombers and fighter planes literally wiped the fascist main line of defence off the face of the earth and destroyed tank columns moving up from the rear before they even had a chance to come near our forces.

A leading role in this event was played by pilots flying the IL-2 attack planes.

In the air, the initiative passed to our pilots, just as on the ground it passed to our artillery, tanks and infantry.

Our fighter planes provided dependable and impenetrable air cover against enemy air attacks and Soviet bombers began to surely and certainly break the road for our ground troops.

On July 12 our counteroffensive was launched.

The decisive battle was on.

Tense aerial combat continued unremittingly, day and night. Never had there been as many missions flown as during those days.

The tempo of the Soviet advance quickened. The role of aviation switched from defence to attack. Our aircraft tried to inflict the greatest possible damage and to prevent the enemy from retreating in good order.

The Hitlerites were thoroughly demoralised by the courage and daring of our pilots and by the excellent qualities of our fighter planes. Even on those occasions when they had the numerical advantage, they preferred to decline battle.

German orders to their pilots to categorically avoid combat with Soviet fighter planes, especially those of the latest types, have been preserved in archives. In the orders, distinguishing characteristics of the new models are described.

On August 5 our troops liberated Orel and Belgorod. The same day, at midnight, for the first time in the history of the Soviet Union, Muscovites witnessed a victory salute fired by scores of cannon. The ack-ack gunners of Moscow, who only recently had traced the skies of the capital with their ammunition, were now lighting it with bursts of fireworks.

The strength of the Soviet aircraft industry was fully demonstrated in the significant victory on the Kursk salient. Our plants had increased production to such a degree that the front was receiving 100 planes daily, including 40 fighters.

Our planes were masters of the sky.

In 1942, General de Gaulle proposed that a French air squadron be based in the Soviet Union and the Normandie-

Niemen regiment was formed. As a result of the betrayal of Marshal Petain, French forces were denied the possibility of fighting the enemy on their native soil. Our government had no objection to participation by French pilots in battles on the Soviet-German front. Of course the number of French pilots in the Soviet Union was few, but they symbolised the unity in the struggle against a common enemy.

M. Garreau, the representative in Moscow of General de Gaulle, stated on March 13, 1942:

"Perhaps this reprensents a drop of water in an ocean, but the hearts of the whole French nation are with our soldiers who will fight side by side with their Russian brothers. The fraternity of our peoples on the field of battle will have great significance not only for France, but for the whole of Europe . . ."

I also recall the conversation concerning the Normandie-Niemen regiment during a dinner in the Kremlin held in honour of General de Gaulle during his visit to Moscow in December 1944 for the signing of the Soviet-French Treaty of Alliance and Mutual Assistance.

The small hall in the Kremlin palace where the dinner took place is luxuriously lined with blue silk hangings and embellished with gilt baroque decorations. Beneath the ceiling the walls bear the monogram of Catherine II and the motto: **"For Love and Homeland."** The room has not been altered and is kept as a museum.

That evening about 50 people were gathered there. Soviet diplomats, ministers, generals and admirals in full dress uniform, the American ambassador Averell Harriman, the British chargé d'affaires, Balfour, were present. After a while, led by Stalin, the leaders of the Soviet Government entered. The last to arrive was the head of the French Government, General de Gaulle, accompanied by his Minister of Foreign Affairs, Georges Bidault, and members of their party.

General de Gaulle is very tall, slow in his movements. He was dressed simply and modestly. With a courteous smile he approached Stalin and they shook hands warmly.

With de Gaulle's arrival, everyone was invited to the table. Toasts in honour of our French guests were proposed. Return toasts in honour of the hosts resounded.

Then Balfour rose to his feet and in Russian read a prepared toast in honour of France, which he kept referring to as a sphinx.

"Ancient peoples spoke about a mysterious creature, the sphinx. We have thought of France as such a mysterious sphinx — a France enslaved, which concealed for us the unexpected and unknown. Today France is free and is taking her place in the ranks of sovereign European states, nevertheless, she still remains a sphinx. I raise my glass to this sphinx."

After dinner the guests moved to the neighbouring Mirror Salon where coffee was served, then on to the screening-room. First we were shown the film **If There Is War Tomorrow,** followed by a Disney cartoon and the Soviet comedy **Volga-Volga.**

Stalin sat beside Harriman. During **Volga-Volga** they both laughed heartily and Stalin teased Harriman over a ditty sung in the film that referred to an American paddle-steamer.

When the lights came on, before the gathering broke up, a toast was proposed to the pilots of the Normandie-Niemen regiment. The regiment commander was among those present. Stalin asked him his opinion of the YAKs. He replied that French pilots had flown American fighters and the British Spitfire but preferred the YAK-3.

We drank to the YAK-3, to Soviet pilots, to victory.

The war was over and the moment of parting came for Russian and French pilots, veterans of many air combats fought side by side.

According to French tradition, the victor returns home with the arms he has used to vanquish the enemy. Honouring this national custom, the Soviet Government presented the French pilots with the planes they had flown and fought in. One after another, in group formation, all 40 YAK-3s piloted by the Normandie-Niemen regiment flew off for Paris.

At the same time, in order to help French mechanics master the YAK-3, a group of Soviet experts headed by Engineer-Major Agavelyan, second-in-command of the Normandie regiment, flew to France in cargo planes.

When they got back, they described to us in detail the reception accorded the French pilots who had fought in the Soviet Union and to the Soviet mechanics.

The occasion proved to be a heartfelt demonstration of Franco-Soviet friendship.

Since then that wonderful country, incomparable Paris, and the live sociable French remain firmly ensconced in my memory, as though I myself had been present on that memorable day when the Normandie pilots returned home.

Soon afterwards I received a gift from France — a magnificent Sèvres vase. Presenting it to me, the French ambassador said:

"Mon général! In token of the cooperation with French pilots, please accept this vase. What makes it unique is that it is the first vase produced by the Sèvres factory after the German invaders were driven out and it symbolises Free France . . ."

Today the pale green porcelain vase, a thing of great beauty and craftsmanship, stands in my home. Invariably it attracts the attention of guests and it gives me great pleasure to tell them about the Normandie regiment and its glorious French pilots.

Victory

As a result of the Kursk battle the Hitlerite army found itself on the brink of catastrophe. On land and in the air the initiative had fully passed to the Soviet Supreme Command. Soviet aircraft threw the German retreat into disorder, blasted them at river crossings. Our fighters were in complete control of the skies. In three months — January, February and March 1945 — almost 4,000 enemy military aircraft were destroyed.

The war moved onto the enemy's territory. Things were nearing the end.

And so Berlin. In the aerial combat over the German capital some 1,500 nazi planes took part — all that was left of the once proud "invincible" Luftwaffe. The air armada, a rather variegated lot now, was based on 40 airfields around the city. The Hitlerites fought with the desperation of the doomed. Often 1,000 planes took part in a single aerial battle. On the very first day of the Berlin offensive, Soviet pilots flew 17,500 sorties in spite of the fact that weather conditions were not favourable. The remnants of the Luftwaffe were gradually wiped out.

Over Berlin our pilots saw German jet planes for the first time. However, as the May 2 **Pravda** reported: "The solitary jet fighters that appeared did not help the Germans. Our pilots, flying YAKs, quickly discovered the weaknesses of the jets and shot them down . . ."

In the battle for Berlin the Hitlerite air force was destroyed and ceased to exist. Those German planes that survived destruction in the air or on the ground were captured as trophies.

The victory of the Soviet people in the Great Patriotic War was a historical summing up of the development of our armed forces, including our air force. Only a comprehension of that summing up enables one to understand how Soviet aviation achieved supremacy in the air and delivered a crushing defeat

to the Luftwaffe and to realise the correctness of the new paths chosen by Soviet aviation in the post-war period.

The war pronounced its verdict on various air force doctrines, objectively evaluated the level and trend of ideas on aviation in the world's major powers.

Analysing the course of the war, it must first be noted that the German concept of the **blitzkrieg** (lightning war) and the idea that air power is based on bomber strength, showed its complete bankruptcy.

The inhuman, total bombing of London and other British cities did not achieve its objective — to bring the British people to their knees. While the war was already on, Britain did an excellent job organising its air defences. The Spitfires and ack-ack took an enormous toll of Goering's air pirates. With each air raid the Germans suffered increasing, one might say irreplaceable, losses in bombers and air strength generally. In the end they were forced to give up their raids and acknowledge defeat in the aerial war over England.

The war also showed the ineffectiveness of Anglo-American attempts to crush Hitlerite Germany by relying solely on fleets of heavy bombers.

Not until June 1944, fearing the swift westward advance of Soviet troops, did the Americans and British, landing in Normandy, open the so-called Second Front.

One of the basic aims of the massive Anglo-American bombing of Germany was to destroy aircraft plants, particularly those producing fighter planes. Nevertheless, production of these planes continued to grow. Thus, in 1939, 449 Messerschmitt-109 fighters were produced, in 1940 — 1,693, 1941 — 2,764, 1942 — 2,665, 1943 — 6,247 and in 1944 — 13,786. The Hitlerites safely hid their plants underground to protect them from air raids.

The battle of Stalingrad also convincingly demonstrated that air power alone cannot decide the outcome of a campaign. On some days the number of combat missions flown by the Germans reached 2,000, but our defences held firm.

No matter how great the role of heavy bombers in modern warfare, Germany could only be defeated by the combined efforts of all types of forces — that was the essence of our doctrine. The advantage of our air force during the Great Patriotic War lay in its close cooperation with all categories of the armed forces of the Soviet Army. That is why the backbone of the Soviet air force was tactical aircraft. Therefore heavy bombers, such as the American Flying Fortress and the

British Lancaster and the necessary long-range escort fighters of the Thunderbolt and Lightning type practically had no place in the Soviet air force between 1941 and 1945.

An analysis of the development of aerial warfare during the Second World War shows that army needs were limited to four or five basic types in production simultaneously. This was as true of Soviet aviation as of German.

The experience of the war confirmed that Soviet aviation thinking was proceeding along the right lines. Our main planes — the fighters YAK and LA, the attack plane IL and the bomber PE, were superior in their fighting qualities to German aircraft of the same type — the ME-109, F-W-190, JU-87, and JU-88.

This is explained by the fact that —

* the level of our aerodynamics was higher
* the science of weight was more advanced
* the fire-power was greater
* certain types of the aircraft were equipped with rockets
* and the IL-2 attack plane was a new, unique type of armoured craft.

Our aircraft created in the prewar years 1939-40 had potential for modification, whereas the German planes built in 1935-36 had by the beginning of the war largely exhausted possibilities of improvement.

Lend-Lease aid to the Soviet Union never amounted to more than four or five per cent of total U.S. production of planes, tanks, weapons and other military equipment between 1941 and 1945.

In 1941 the Soviet Union produced 15,735 aircraft. In the difficult year of 1942, when plants were still in the process of being tranferred east, 25,436 planes rolled out. In 1943 the figure rose to 34,900 in 1944 to 40,300 and in the first half of 1945, 20,900 planes were produced.

Can the 14,000 planes sent by the United States really be weighed in the balance against the powerful output of Soviet plants?

Successes on the home front enabled us to significantly strengthen the air force. At the beginning of 1944 Soviet air force numbered 8,818 fighting planes, the Germans had 3,073. As time went on the balance in our favour increased. By June 1944 the Luftwaffe had only 2,796 planes at the front: we had 14,787. By January 1945 the number had gone up to 15,815.

The Germans lost 62,000 aircraft, or two-thirds of all their

planes on the eastern front. Certain unscrupulous military historians negate the role of the Soviet air force in destroying the Luftwaffe and if they do mention our planes, refer to them as "primitive" and "hewn with an axe".

Of course, our fighting planes were infinitely simpler in construction and technology than, say, American or German ones, and that was their advantage.

Our planes could be produced in the specific, difficult circumstances of the early period of the war. Added to the problem of relocating the plants in the East, there was an acute shortage of aluminium, flight instruments and a whole number of materials essential for the mass production of planes, engines and aviation equipment. And they often had to be produced by unskilled workers, mainly women and adolescents.

Considering all these factors, our planes turned out to be quite up to the severe demands of aerial combat on the Soviet-German front and equal to the job of fighting the world's strongest air force.

The Jet Age

In our design office we began work on a turbo-jet fighter — the future YAK-15 — immediately after the defeat of Germany.

Before deciding what it should be like, the designers Adler, Schechter and I explored various possibilities. Yevgeni Adler was appointed chief designer, he was to be the heart and soul of the new aircraft. Adler and Schechter are both talented designers, who have come to maturity in our group. They came to us from draughtsmanship courses and had no higher education. But due to hard work and an inborn gift for designing, they achieved the honour of doing the most responsible work in our office. (Later both of them graduated as engineers and received their diplomas, having studied in their spare time just as so many other practical designers have done.)

Considering the suspicion with which jet planes were regarded because of failures in the West, we decided that the first thing that had to be done was to make the pilots believe in jets, to convince them that they were not more difficult to fly and were not more dangerous than ordinary planes powered by a piston engine. Our aim was to build a plane that would resemble an ordinary aircraft in every feature possible, but with a jet engine. In the cockpit, the pilot would find himself in familiar surroundings and during take-off, flight and landing would not

experience any different sensations from flying an ordinary plane.

We managed to carry out our plan. We did not err when we installed a turbo-jet engine in the familiar YAK-3. Of course, it was necessary to alter the nose section of the plane drastically, but everything else — the cockpit, wings, tail, undercarriage — was left without any major changes. As a result, we estimated that we would have a light plane, very easy to handle, that would fly at more than 500 m.p.h., that is to say, much faster than an ordinary YAK-3.

All our designers and workers were fascinated by the project and wanted to see their first jet offspring in the air as quickly as possible.

A few months later the test pilot Mikhail Ivanov climbed into the cockpit. We were all gripped by nervousness but he was calm and insisted that everything would be all right.

The engine started. The characteristic, unfamiliar whine deafened those present.

Ivanov tested the engine — it was fine! — and after a very short run lifted off.

The maiden flight of our jet!

What a surge of joy engulfed everyone!

The machine came in for landing and touched down smoothly. Ivanov taxied to the line and no sooner clambered out that dozens of hands grabbed him and in a wave of enthusiasm began to toss him in the air.

"Stop, stop, you devils, you're going to kill me!" the laughing pilot shouted.

Ivanov's first impressions of the flight were that there was a lot less noise in the cockpit and that the vibration usual in a plane powered by a piston engine was absent. From the point of view of handling, there was no difference.

All told, the first reaction was very good.

The same day in April 1946, at the same airfield, the first test flight of the jet MiG-9, designed by Mikoyan and Gurevich, took place. With a take-off weight of 5,000 kilograms it was able to attain a maximum speed of over 560 m.p.h.

That day was a double holiday.

Mikoyan and I were told to prepare for the Tushino air show. Each plane scheduled to participate had to pass through a special test programme in order to ensure that nothing unexpected happened during the fly-over.

The long-awaited day finally came. Naturally, I could not sleep the night before and I imagine that neither could Mikoyan.

And as always happens on such occasions, in spite of the fact that everything had been checked a thousand times, I was gripped by unbelievable anxiety as soon as I set foot on the flat roof of the aviation club from where designers whose planes were included in the show usually watched. I had thought I was early, but Mikoyan was already there. We were both in the same state of nerves, experiencing the same fears and emotions. We looked at each other and involuntarily began to laugh.

"Comrades in misfortune," I said.

"Maybe we'll have something to celebrate," he joked. "Well, we haven't long to wait now, we'll soon know."

At last the moment came. The remaining planes disappeared from the skies over the field and the announcer proclaimed: "The jet aircraft designed by Yakovlev is now nearing the airfield."

At that instant a black speck could be seen approaching fast at low altitude. Another second and I could recognize the familiar outlines. Right before the stands, with an ear-shattering whine, Ivanov swept past in the YAK-15. A few moments later the MiG-9 followed. Scores of people, friends and strangers, surrounded us, congratulated, embraced, kissed us. And our legs were almost buckling with the strain of what we had gone through. I felt physically drained, exhausted, and everything swam in a fog before my eyes.

The show ended. The people dispersed.

My inimitable chauffeur, Misha Sushchinsky, whisked me home and I fell on the bed and slept like the dead.

Within a few years jet aircraft became an everyday phenomenon of our aviation and thanks for this belong not only to the engineers and workers of the aircraft industry but to our test pilots as well.

In the 1950s we were mass-producing military aircraft that fully conformed to the standards of the time. They served us until the end of the decade when newer, faster planes, equipped with rockets and capable of flying at higher altitudes, replaced them.

On Stalin

In March 1953 Stalin died. Over the 12 years of my association with him, I stored up quite a few memories.

His appearance: less than average height, proportionate body, erect posture. I never saw his face flushed — it was pock-marked and of an earthen-grey colour. The hair was black, with a lot of grey, and combed back smoothly. The eyes were grey-

brown. When he wished, even without a smile, they could be charming and accompanied by a smile they were melting. When he was angry, they were piercing. When he was irritated, red spots would come out on his face.

Stalin spoke Russian correctly, but with a marked Georgian accent. His voice was a trifle hollow, throaty. His gestures, movements, walk were measured, not impetuous, but expressive.

In all his personal habits he was exceedingly modest. Usually he wore a grey tunic of a military cut, over trousers of the same cloth but civilian style, which were tucked into very soft, almost heel-less thin-soled, kid boots. At times he wore the same trousers over the boots. During the war he frequently wore his Marshal's uniform.

I saw Stalin for the last time at the 19th Party Congress in October 1952. His hair was thin, had turned white and he had aged a lot.

During meetings and conferences it was Stalin's habit to pace up and down the length of his office. He would walk and listen and then sit down on a long, black, leather-covered chesterfield that stood against the wall between two windows and that was somehow cold and uninviting. He would sit on the very edge, smoke and then resume his pacing. He rarely interrupted but gave a person the chance to say his piece.

Stalin did not have stenographers or secretaries present when the interview or conference concerned only a few people. When meetings involved a number of participants, people often used to send him notes. He always read the message, folded it neatly and pocketed it.

Stalin had no patience with superficiality and was merciless toward those who in discussion spoke without knowing their subject. Any inclination to speak thoughtlessly evaporated in his presence.

He was demanding — that was a characteristic trait of his style.

When at the end of 1945 and the beginning of 1946 we were discussing the future development of our aviation and debating whether we should simply copy the Messerschmitt jet fighter we had captured or work on our own, Stalin firmly supported the line that we should rely on ourselves.

"To copy," he said, "means that we lag behind, plod at the tail. Sometimes it's useful to copy — to gain experience — but a fundamental problem must be solved by our own abilities. Only shortsighted, limited people would fail to understand this."

Knowing Stalin's severity and suspicious nature, which in my opinion often led to the removal of good workers, I was especially attentive when he expressed ideas about personnel. There was much in them that was incomprehensible to me.

"On the average, people are all the same everywhere," he used to say. "Of course, it would be good if we could give you the very best people, but there are few good ones, you can't make them all good. There are the average — there's a lot of them, more than the good ones — and there are also bad ones, they exist too. You have to work with what you've got. Where are you going to get only good ones?"

I also remember the following speech:

"Every man has his faults and makes mistakes. There are no saints. That is why one must put up with the minor shortcomings in a man's work. What is important is that the balance is favourable. You think, you have no faults?" he queried and touched my shoulder. "You have. And I have faults too, even though I am 'the great leader and teacher.' I know this from the papers," he joked.

At the same time I was a witness on occasions when he displayed great harshness and did not take the "favourable balance" into consideration. Once stalin said to an economic manager:

"I see you like peaceful life. You should be in the graveyard then. It's only peaceful there — the corpses won't argue with you about anything or demand anything of you."

Khrunichev, the Minister of the Aircraft Industry, told me that he was once present when Beria, with his usual perfidiousness, tried to compromise me in Stalin's eyes. Luckily, however, Stalin believed in me and nothing came of Beria's insinuations.

Wings of the Homeland

On July 9, 1961, an air show was held at Tushino.

That year was one of great successes. The achievements of the first cosmonauts, Yuri Gagarin and Herman Titov, filled the hearts of Soviet people with pride in the work accomplished in the recent past and gave rise to visions of creative victories in the near future.

For us working in aviation, that air show was a progress report to the whole people.

Hundreds of thousands of spectators gathered to see the latest innovations in aviation technique.

The two-hour show proved that in the last few years our air fleet had undergone a major change. Speed, height and range had grown immeasurably.

For the first time, supersonic military aircraft of various types were publicly demonstrated. Fighters equipped with air-to-air rockets, heavy rocket-carriers with air-to-ground missiles, sea planes, flying boats and special purpose planes — and all of them could fly faster, higher, and farther, and world records had only recently been set in them. Complex individual and group figures and patterns showed off the skill of the pilots and their mastery of the latest aircraft.

The 1961 show reflected the results of the revolution that had taken place in aircraft design.

The Soviet air force had become jet-propelled. It was supersonic. The speed of some fighters in the show was twice the speed of sound.

The air force was equipped with rockets. Swift missile-carriers had replaced the old, slow bombers.

The huge masses of people who spread over the green fields of Tushino watched the sky avidly and tensely. Applause resounded again and again as spectators showed their admiration for the daring of pilots and the high quality of the planes.

And even though I was as nervous as ever — as all designers are at an air show when their planes are taking part — I mentally slipped into the past.

I recalled the distant days when I, a young man in love with planes, first came to Moscow's Central Aerodrome as an engine mechanic, having achieved my cherished dream — to be near real planes, to be able to touch them, to talk to real pilots and mechanics.

I recalled the air shows held at Tushino 20 and 25 years ago in which my first sports planes participated.

And the first postwar air show held in Tushino in the summer of 1946 came to mind as well, when our earliest jet aircraft, the YAK-15 and MiG-9 fighters, were demonstrated. They laid the groundwork for the revolution in aviation science and technology in our country. Since then, less than 15 years had passed, but how far our aviation had advanced during this period, what a gigantic step forward had been taken by our science, our technique and our industry!

It is indicative that for several days following our 1961 air show the foreign press — and not merely the trade press — was full of reports on the Tushino review. For understandable reasons, the press of bourgeois countries paid special attention to our military aircraft. The broad scope and high level of military aircraft in the Soviet Union came as a surprise to the West. They had thought that all our efforts and resources were

directed toward the development of rocketry and that we were not bothering about planes.

Military and sports aircraft are always the first to set speed and altitude records but new techniques are quickly absorbed by the passenger airliner industry. In recent years our civilian air fleet has grown just as rapidly as our military air force. This was conclusively demonstrated during the air review when a whole number of passenger aircraft took part.

Six years later, in 1967, another air show was held. It was distinguished by the fact that for the first time it was not held at Tushino, but at the new airport of Domodedovo. Tushino, so dear to my heart, forever associated with memories of the infancy of Soviet aviation, was no longer capable of handling the new supersonic planes. They need space — both in the skies and on the ground.

I have been present at all air shows to mark Aviation Day and my planes have been included in most of them. I have also been an observer at various air shows in Britain, Germany, Italy and France. This gives me the right to compare. I must say that the show at Domodedovo surpassed anything I had ever seen. It was a genuine review of jet age aviation. The majority of planes taking part were demonstrated for the first time. Brought together and effectively shown off, the parade created a colossal impression and many guests, particularly foreigners, were utterly astounded.

Our vertical take-off and landing jet has opened a new era in the development of the air fleet. The time will soon come when supersonic craft will no longer require expensive long runways and will be able to land and take off from any point on the earth. It has been proved over and over that as swift transport aviation has a great future.

The exhibition of two variable sweep planes confirmed this yet again. These small, light planes could race past at great speed, their wings folded back to the tail, or having extended them, float slowly like a glider.

In creating variable sweep aircraft, a number of complex technical problems had to be solved. The chief difficulty was to find the right aerodynamic balance that would ensure stability and control over the plane through the whole range of wing positions. In effect, two types of planes had to be combined in one: a glider with a supersonic fighter. Domodedovo showed the world that Soviet designers were up to grappling with such a complicated proposition.

It was not long before announcements of new world records

followed — set in planes shown initially at Domodedovo. Hero of the Soviet Union, pilot A. Fedotov set an altitude record of 30,010 metres with a payload of two tons on October 5, 1967. Komarov flew 500 kilometres in a closed circuit at an average speed of 2,930 km.p.h. on the same day. With a payload of two tons, Ostapenko flew 1,000 kilometres in a closed circuit at an average speed of 2,190 km.p.h. All these records were set in Mikoyan's one-seater E-266 intercepter.

Speeds above 1,800 m.p.h. cause the plane body to overheat — the outer skin can reach 570 degrees F. Therefore special, heat-resistant alloys were used in the construction of the E-266 and a complex cooling system was installed.

Planes designed by O. Antonov were effectively shown at Domodedovo — paratroopers were dropped from AN-12 aircraft. Over 1,000 fully-armed men descended onto the field.

Heavier equipment, such as rocket carriers, came down from an AN-22. Even though the Antheus, as it is called, was displayed for the first time at Domodedovo, its fame at home and abroad preceded the showing.

Civil aviation was just as impressive. The line-up was led by the veteran TU-104, the first jet passenger liner in our country. The TU-114, IL-18, AN-10, AN-24 and TU-124 followed — all planes well known to air passengers. Then came the newest additions to the family: the 24-seater YAK-40 for short distances, the 72-seater TU-134 for medium-length runs and the 182-seater IL-62 for intercontinental flights.

In spite of these undoubted triumphs, work on new, more modern and better passenger airliners does not abate for a moment. The day is not far off when along with military aircraft, passenger planes will break the sound barrier. When that time comes, a flight from the Soviet Union to America or to India over the highest mountain ranges, will take a mere three or four hours. At the present time the supersonic passenger aircraft, the TU-144, is undergoing trials.

Today Aeroflot is one of the major airlines in the world. Its routes cover some 300,000 miles and it serves 3,500 towns and settlements in the USSR. The runs Moscow—Yuzhno-Sakhalinsk, Petropavlovsk-on-Kamchatka—Simferopol are the longest continental air routes in the world. There are days when our fleet handles 300,000 people. In 1969, 60 million passengers were carried. Aeroflot is responsible for 30 per cent of the world's air traffic.

Soviet planes fly to 54 foreign capitals and foreign routes cover 100,000 miles. The TU-114 flies from Moscow to Montreal in 12 hours. Another "air bridge" to the American continent is the Moscow-Havana line which at the present time is served by the IL-62.

Our air transport has great prospects of development and growth.

Fulfilment of a Dream

Besides other abilities, a designer must be capable of dreaming. New ideas, concepts of designs, paths to their realisation, are born of dreams. The greatest meaning or point of a man's life is to see a vision fulfilled, and that is especially true of a designer's life.

I remember the naive fears of adolescence, when it seemed that others had already invented everything, done it all. The steam and the internal-combustion engines had long ago been created, man had learned to harness electric power and invented radio. Motor cars raced along roads and planes sped across the skies.

However, the very first steps I took in my practical career convinced me how wrong I was. The progress of technique is limitless. It turned out that one set of problems is solved only in order to reveal other, even more complicated ones.

When I had finished constructing a glider, I was possessed by an unquenchable desire to build a plane. Then I wanted to build another, a better one, and a third . . . When you are working on a model you think: if only it flies, that's all I ask of life! You finish it, it flies, and a new dream is born — to create another plane, a faster one . . .

When my first fighter was accepted and put into mass production and thousands of YAKs began to roll off the line, it would seem that my dream had come true. But then a new dream came along.

To have an aim, to solve the incomprehensible, to experiment, to calculate and finally to achieve success — this brings great satisfaction. Everyone experiences it who creates something new.

The harder it is to attain victory, the sweeter the satisfaction when reached.

An enormous distance has been covered between the primitive planes of the twenties and today's supersonic jet aircraft and powerful helicopters.

At the present time, each major Soviet plane designer heads

a large group of people. Experts in every branch of aviation science are members of the team.

We have a fine production base and first-rate research laboratories, where the most complex experiments can be carried out, at our disposal.

But the path we have covered has by no means been smooth — it has meant a daily, unremitting struggle. Each step forward requires determined, painstaking labour and patience, and a firm faith in final victory in spite of temporary setbacks.

And difficulties crop up unceasingly. The whole way, Nature persistently place obstacles in the road of aviation's development, obstacles which at first seem insurmountable.

In the thirties, when we were working on the training plane, the UT-2, aviation was living through one of its terrible diseases — the tail-spin.

Today everyone knows a tail-spin as one of the figures performed by top pilots. He puts the plane into a dive and, after several spins, smoothly brings it out.

Things were different in the old days.

Spins just happened and everyone tried to discover why. Scientists in the laboratories tried to establish the reason for the dangerous phenomenon and heroic pilots, risking their lives, tried to trace all the phases of the spin and discover why a plane would all of a sudden become uncontrollable. And the solution was finally wrested from Nature.

When planes began to fly at speeds of 240, 300, 360 m.p.h. builders ran into entirely novel, unexpected phenomena. The body and particularly the wings and tail began to vibrate at those high speeds. It sometimes happened that the vibration, which is termed flutter, literally shook the plane to pieces and it disintegrated in the air.

In 1934 we thought that once we solved the problem of the tail-spin, we would move ahead smoothly. When flutter plagued our lives, again it seemed that if we found the solution all would be well.

Once again endless experiments in the laboratory and in the air took place and test pilots performed feats of heroism until at last the causes of flutter and means of preventing it were discovered.

But new problems arose when sonic speeds were reached.

At one time it seemed that speeds of 600 m.p.h. were a fantasy of the imagination, something beyond the horizon. But life soon showed we were wrong. Today, when planes fly at supersonic speeds as a matter of course, it appears there is no limit

to the possibilities. The path to the future lay through the sound barrier.

Supersonic speeds led to a sharp increase in aerodynamic resistance. The wings cut into the atmosphere at such a speed that a wave of compressed air was formed ahead.

This reaction made scientists re-examine the laws of aerodynamics and alter the shape of the plane. It was found that swept-back wings could overcome air resistance much more easily than the traditional rectangular or trapezoidal ones.

So they overcame another obstacle — only to find that a heat barrier stood in the way of attaining still greater speeds. The air friction engenders a temperature rise in the plane's surface. And this, too, is being overcome.

Aviation has long ceased to be the sole preserve of aviators. Successes and innovations can only be achieved by the combined efforts of tens of thousands of people engaged in a multiplicity of endeavours. The plastics industry, for instance, is coming into its own in aviation and the chemical industry is called on again and again to provide new materials essential for novel production processes.

Today not a single part, unit or system is installed in a plane without first undergoing a long series of checks which include X-rays and lab tests which simulate actual flight conditions at high speeds and altitudes.

To imagine a plane and then to see it gradually taking shape, to see the dream become reality and the test pilot fly your plane into the heavens, to know that thousands of such planes guard your beloved land —that is the enormous joy of the creative designer.

And no matter how great the difficulties and temporary setbacks, the end successful result makes up for it all.

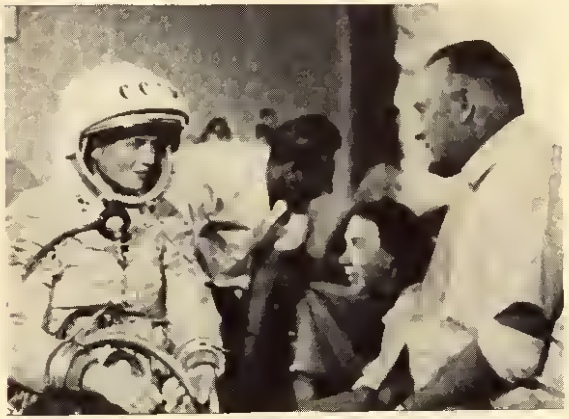
Forty years ago we were delighted when we built a plane that could do 180 m.p.h. Today silver birds streak across the sky at ten times that speed.

Artificial satellites circle the earth and spacecraft herald the dawn of inter-planetary travel!

How many fascinating problems loom before scientists, engineers, designers!

You want to work and work, to penetrate farther and farther into the unknown, to reach new heights.

That is the meaning and point of an aircraft designer's life.



In next month's Book Section

"From the soil of our sacred Motherland, Soviet spacecraft, lifted by powerful rockets, will depart for space more than once. And each flight and each return will mark a great celebration of the Soviet people and of all forward-looking mankind — a victory for reason and progress."

The above words belong to Sergei Korolyov — chief designer of Soviet spacecraft. Pyotr Astashenkov's book, **Sergei Korolyov**, is dedicated to the man's life and work. A condensed version of the book will be published in SPUTNIK's next issue.